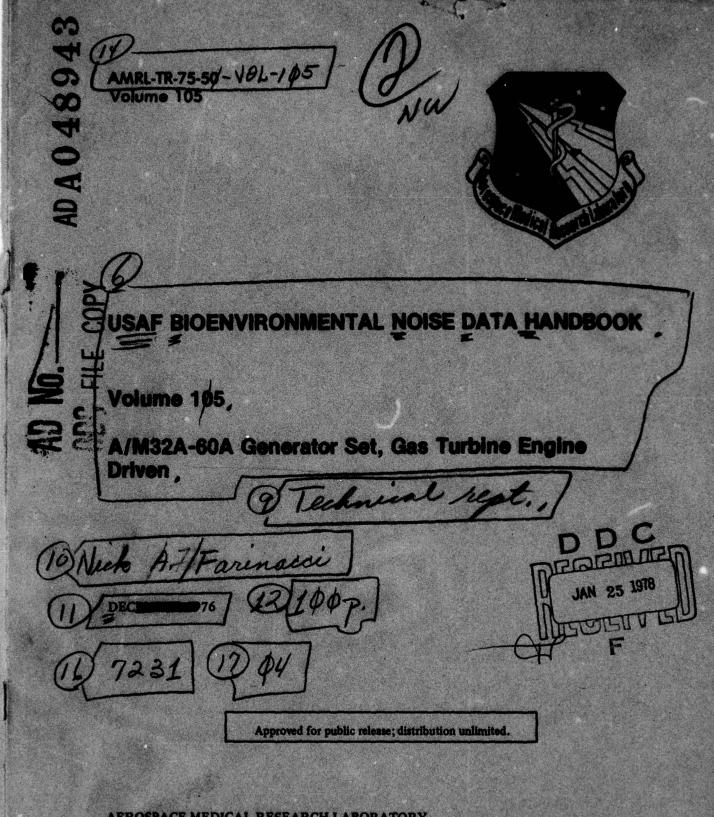
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AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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FOR THE COMMANDER

HENNINGE. VON GIERKE

Director

Biodynamics and Bionics Division Aerospace Medical Research Laboratory

AIR FORCE/56700/3 January 1977 - 300

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The A/M32A-60A Generator Set is a gas turbine engine driven source of electrical power with pneumatic capability. This report provides measured and extrapolated data defining the bioacoustic environments produced by this unit operating outdoors on a concrete apron at normal rated/loaded conditions. Near-field data are reported for 37 locations in a wide variety of physical and psychoacoustic measures: Overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived

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SECURITY CLASSIFICATION OF THIS PAGE(When Date Entered noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 36 locations are normalized to standard meteorological conditions and extrapolated from 10-1600 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, VSAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application. AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. created Hodros , within a laured despensi · LEVER BY MEA SHIETS IN THE PROPERTY ADDRESS.

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# PREFACE

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This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723104, Measurement and Prediction of Noise Environments of Air Force Operations.

The author acknowledges the efforts of Mr. Robert G. Powell and Mr. Robert A. Lee who assisted in conducting the field measurements, and Mr. John N. Cole who established the data analysis requirements and assisted in the preparation of this report. Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton assisted in the mechanics of data processing, and Mrs. Norma Peachey and Mr. Mike Patterson typed and prepared the graphics.

List of Tables

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### INTRODUCTION

The A/M32A-60A Generator Set is a gas turbine engine-driven source of electric power with pneumatic capability. This unit is manufactured by the HOL-GAR Manufacturing Corporation.

This volume provides measured and extrapolated data defining the bioacoustic environments produced by this unit. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with operations of the A/M32A-60A generator set.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produces at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type, noise data in the handbook described the noise produced during ground operations of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure) to derive comparable data for other meteorological conditions. Refer to Volumes 1 and 2 (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published, and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of the updated index as it is generated.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; Autovon 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

Cole, John N., USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

Cole, John N., USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

# **NEAR-FIELD NOISE**

#### **MEASUREMENTS**

A standard A/M32A-60A Generator Set was operated outdoors on a concrete apron at normal rated conditions and electrically loaded, using an M24T-8 load bank with no significant sound-reflective surfces present except the ground plane. The load bank was physically located so as to not interfere with the A/M32A-60A noise field. Table 1 notes the surface meteorological conditions at the time of measurement.

Figure 1 identifies 72 noise measurement locations at a height of 1.5 meters above the concrete apron (nominal ear level of ground crew). The 0 degree reference direction passes through the two bar. The 36 locations on the two inner circles are in the acoustic near-field of the source where the sound wave fronts generally do not spherically diverge and the source appears to be spatially distributed (i.e., not a point source). Consequently, these near-field data cannot be extrapolated to longer distances but do properly define the levels at locations close to the unit.

Near-field measurements were also made at ear level at the operator control panel. Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the operator measurement location and test conditions. The designator 1/A means operator location 1 and test condition A. Such a descriptor is essential in many handbook volumes that involve multiple combinations of location/conditions. It is used in this report to maintain format consistency.

#### RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the A/M32A-60A unit at the 37 specified, near-field locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

For data at other intermediate near-field locations (i.e., for radial distances less than 10 meters) you can interpolate between the 72 measured data points. All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short distances over which the sound is propagated.

# TABLE 1

# MEASUREMENT LOCATION AND TEST CONDITIONS FOR OPERATOR NOISE MEASUREMENTS

A/M32A-60A Generator Set, Power Unit Edwards AFB, 3 June 1975 FSN 6115-420-8486 Mfr. Part # 69E39110

#### Measurement Location

(Agent) Asymptotic (Company)	Operator Control Panel
Operation	
A	100 AMP, 240 VAC, 3 Phase; No Air Output
B. A. D. C. A.	100 AMP, 240 VAC, 3 Phase; 40 PSI Air Output
Meteorology	
Temperature	28 C
Bar Pressure	0.693 M Hg
Rel Humidity	28 %

### **FAR-FIELD NOISE**

#### MEASUREMENTS

Noise measurements were also made on the same A/M32A-60A unit under the same test conditions at the outer circle locations on Figure 1. These 36 locations are in the acoustic far-field of the source where the sound wave fronts spherically diverge and the unit may be regarded as a point noise source. Under these far-field conditions, the measured data can be extrapolated to longer distances.

#### RESULTS

Table 4 lists the overall and 1/3 octave band SPL measured at the 36 far-field locations under the meteorological conditions at the time of test. These data were normalized to 10 meters distance and standard meteorological conditions (15C temperature, 70% rel humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 2 which provides a compact summary of the far-field noise characteristics of the A/M32A-60A generator set in a standard format.

These measured data were also used to derive sets of equal noise contours (Figures 3 through 9) describing seven different measures of noise as functions of angle and distance from the source for standard day meteorology. Note that Figure 8 contours identify limiting exposure time for personnel. Missing data points on any of the contours are the result of eliminating measured data which contained excessive influence of spurious background noise present at the time of measurement. In some cases, contour levels at these missing data points were estimated and indictated with dashed lines.

Volume 2 of the handbook defines the influence of meteorology on far-field noise environments and provides, if required, the factors necessary to adjust the handbook standard meteorological day data.

								elsi Isjo				OMEGA	GA 3.2	
NOISE SOURCE/SUBJECT	SUBJECT	Ĉ.	OPERATION:	. NO.			~					G S	11	700-00
A/H32A-60A	GENERAT		GEN L		100AMP,	240 VAC	2					11	10 OCT 75	
GAS TURBINE ENGINEAR FIELD NOISE	ENGINE DRIVEN NOISE LEVELS		NO AZ	IR OUTP	4T-8 LOA PUT		3		ura.			PAGE	11	
	3	*		<b>,</b>	<b>.</b>	4	4		•	•	3	4	4 5	<b>.</b> .
(HZ) CC	CONDITION>	<b>5</b> 4	A 8	3 4	9 4	9 <b>4</b>	101 A	120 A	D 4	100 A	18 4	20 U	022 V	0 4 V
25			814	814	83<	83<	834		83<	824	83<	784	784	834
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100		88	88	88	87	85	40	83	84	85	3 6	40	40	83
125		91	89	87	82	94	78	83	82	85	86	70	82	10
160		89	87	82	94	87	83	85	88	90	91	96	91	87
200		98	98	85	82	98	87	89	91	93	93	93	95	89
250		95	91	91	8 6	35	91	35	93	95	96	96	36	35
515		<b>3</b> 0	56	200		5 0 0	26	9 6	1 2	55.	9 6	500	26	96
200		9 6	8 8	8 6	9 0	8 0	 	4 6	. K	16	36	8 0 A		2 6
630		90	90	83	90	82	81	81	8	87	68	83	98	98
800		87	87	87	81	82	82	82	82	82	98	98	87	98
1000		80	80	90	81	82	80	81	81	62	83	94	81	7.8
1250		81	23	22	8 1	92	92	92	8 1	2	28	62	28	11
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5000		85	85	85	78	11	16	16	78	80	84	62	81	29
6300		85	85	85	81	11	7.8	62	81	81	87	83	82	91
9000		85	84	83	80	7.8	9.2	90	62	62	85	81	81	79
0000		91	90	90	85	85	85	82	98	<b>70</b>	69	92	98	98

OPERATIONS
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87 93

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NEAR FIELD NOISE LE	OISE LEVELS	-	NO AI	OUTP	NO AIR OUTPUT		-	9.7				) PAGE F3
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31.5		298	854	854	834	834	804	834	834	834	87	28
04		91	90	88	86<	86<	86	86<	87	88	90	91
20		06	87	88	88	88	88	90	68	26	95	93
63		06	90	89	88	98	88	91	95	93	93	76 to
90		06	90	89	88	98	98	88	68	91	95	95
100		06	95	90	89	88	88	98	85	87	89	92
125		96	97	96	38	46	93	36	91	91	9.0	86
160		16	97	26	26	95	95	46	93	93	93	66
200		96	86	96	46	95	46	93	93	93	95	96
250	•	01	102	100	66	96	76	95	95	95	95	86
315		66	102	26	76	93	89	90	96	93	97	96
004		66	101	96	41	88	87	89	8	93	96	96
200		93	96	91	87	85	98	89	28	88	96	76
630		90	95	83	91	88	83	76	89	87	90	97
800		85	87	92	92	88	88	*6	8	90	90	96
1000		85	82	87	82	82	81	81	85	87	87	90
1250		83	85	81	91	80	80	80	8	19	85	92
1600		82	81	23	82	80	81	29	80	83	94	79
2000		94	<b>9</b>	83	85	82	94	85	96	87	85	96
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6300		88	91	90	98	88	88	85	85	88	89	99
9000		87	88	88	85	87	87	83	94	98	89	98
10000		91	93	36	91		93	90	95	93	95	36
OVERALL	-	108	110	107	105	104	103	104	103	105	106	108

NOISE SOURCE	1/3 OCTAVE BAND											OMEGA	OMEGA 3.2	A 3.2
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31.5		824	824	804	794	804	794	¥62	764	814	814	>62	8.0	82<
0,		85	834	854	854	854	854	83<	944	844	944	824	834	954
50		87	85	87	92	87	88	96	92	92	96	78	834	92
63		35	93	93	95	91	90	87	88	89	87	96	92	92
08		93	93	93	95	91	88	96	87	89	29	29	29	98
100		36	30	2 2	200	0 0	*	*	6 6	9 9	*	90	200	*
150		16	0 4	0 0	8 04	000	0 V	8 9	3 5	00	0 0	* 6	000	00
200		89	88	87	98	87	88	91	93	95	96	95	91	86
250		95	95	93	91	93	93	93	95	97	100	96	96	93
315		96	96	96	16	92	93	91	96	96	96	96	*6	92
004		06	95	95	96	89	85	98	90	46	16	68	98	83
200		93	90	87	85	83	83	9.4	8	<b>36</b>	95	90	87	92
630		91	95	91	48	94	87	95	98	89	91	68	97	87
800		68	88	8	88	68	88	6	68	87	91	96	6	68
1000		98	87	88	85	87	87	88	87	85	87	87	**	82
1250		85	85	85	83	48	85	\$6	94	**	98	40	**	79
1600		85	85	48	90	82	82	40	95	82	82	82	82	7.8
2000		88	88	98	83	85	98	**	**	94	82	70	63	80
2500		87	90	87	94	98	98	96	92	9.4	68	83	81	80
3150		93	90	90	87	87	88	87	96	88	<b>*</b> 6	98	95	85
		89	90	68	98	87	87	87	29		95	*0	*0	82
		87	68	98	18	82	82	82	*	9.4	96	81	81	99
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OVERALL	のなるとは、 できた者では	105	104	103	101	101	101	101	103	104	106	103	102	100

2	1/3 OCTAVE BAND											OMEGA	•	
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NEAR FIELD NOISE L	NOISE LEVELS	-	40 PS	PSI AIR	OUTPUT		-					) PAGE	F5	
	DISTANCE (H) ->	,	,	•			^	^		2	~	2		2
FREG	-	260	280	300	320	340	, a	20	, 9	9	. 8	100	120	140
(3H2)			8	•	8	0		8	8	8	8	8		80
25		854	85<	96 <	96<	85	884	83<	>62	814	814	83<	854	864
31.5		844	834	834	824	824	864	844	814	834	834	814	834	864
04		864	87	964	864	854	89	88	99	87	68	87	88	91
20		87	87	89	28	87	90	06	96	90	90	90	90	92
63		68	91	92	95	92	96	95	76	76	16	93	93	93
90		06	92	16	76	93	75	*6	93	93	60	69	91	91
		98	68	91	93	91	91	90	88	96	88	69	96	91
125		91	90	28	68	90	93	91	91	92	46	*6	*6	16
160		88	16	95	98	88	16	*6	96	95	96	95	16	66
200		89	85	98	88	88	95	96	95	96	16	96	96	96
250		16	95	92	92	93	86	96	96	16	16	36	16	101
315		95	91	93	96	96	100	26	%	95	16	*	96	97
004		83	48	98	98	89	100	26	26	95	95	91	93	16
200		84	83	83	98	68	46	36	93	91	87	87	29	16
630		87	87	91	90	91	95	93	*	91	91	95	96	8
800		87	87	89	91	89	92	91	91	6	36	93	95	91
1000		82	83	94	88	98	87	98	92	87	98	99	60	68
1250		80	80	81	94	85	98	92	92	93	85	*	90	92
1600		62	11	81	83	70	85	85	83	83	83	83	92	98
2000		80	81	94	98	87	9.0	69	96	87	- 06	92	19	92
2500		91	82	82	85	98	87	68	6	60	93	99	18	85
3150		96	99	98	68	90	46	93	95	92	16	93	92	91
0000		9 4	94	*0	87	88	91	95	36	68	91	91	91	6
2000		80	8	81	92	98	68	68	6	99	92	92	90	98
6300		82	61	82	9.4	95	90	96	96	88	92	96	19	87
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10000		85	96	98	68	91	46	76	93	95	69	26	8	8
OVERALL	the seed self. At the self.	101	102	102	103	104	104	117	106	105	105	105	106	107

) IDENTIFICATION: ) OHEGA 3.2	) RUN 06	1004MP, 240VAC ) 10 10	T-8 LOAD BANK, )		2 2 2 2 2 2 2	2 0 2 2		89 86< 83< 81< 81< 82< 93	88 86< 83< 81< 82< 82< 90	89 87 86< 88 88 87 90	90 69 69 88 88 90 06	90 90 93 93 94 96	86 26 76 88 80 66 68	91 89 88 88 90	97 95 95 91 91 100 90 97 97 98 97 96 96 101	67 96 96 96 96 96 96	96 26 26 96 46 26 86	96 92 93 93 95 98	92 88 88 90 92 95 96	90 88 84 91 89 92 98	93 91 91 95 91 87 92	94 91 91 94 93 91 92		62 80 81 82 85	82 80 82 83 86 87 87	63 63 64 63 65 65 69	91 93 93 91 90 93 95	91 93 93 94 90 93 95	88 89 90 90 88 91 91	83 84 83 82 84 85 88	87 88 88 86 85 87 89	86 87 86 87 86 87 88	91 91 91 91 90 93 94	
VEL (08)	OPERATIONS	NIOADED	3PH, BY M24 40 PSI AIR			0 200		6							1 23		7							82					90					
RE LEVEL	OPER	GE.	ğ 9		2	18	•								1 2																			
A SUR	SOURCE/SUBJECT:	SOA GENERATOR SET.	GAS TURBINE ENGINE DRIVEN (	· · · · · · · · · · · · · · · · · · ·	(H)	ANGLE (DEG)> 160	î	16	88	91	06	92	92	800	OC THE STATE OF TH	86 - A - A - A - A - A - A - A - A - A -	103	101	100	96	93	80 6		9	***	87	96	96	93	87	88	88	***************************************	
TABLE: H	NOISE SOUR	A/H32A-6	GAS TURE NEAR FIE			FREG	(ZHZ)	25	31.5	04	20	63	90	100	160	200	250	315	004	200	630	008	1250	1600	2000	2500	3150	3150	0004	2000	6300	8000	10000	

The state of the s

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE! HE	MEASURED SOUND PRES OCTAVE BAND	SURE	PRESSURE LEVEL (DB)	8		00 F 00 S	10 to 50 .	建設品			22.23	) IDEN	IDENTIFICATIONS ONEGA 3.2	TIONS
A/M32A-6 GAS TURB NEAR FIE	NOISE SOURCE/SUBJECT: A/M32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS	2	OPERATIONS GEN LOAD 3PH, BY NO AIR O	ADED Y H24 OUTP	ERATION: GEN LOADED 100AMP, 240VAC 3PH, BY H24T-8 LOAD BANK, NO AIR OUTPUT	240VAC	2222	828273	or A. Marchaellan Sommon or or or			-) TEST     RUN (	TEST 75-030 RUN 01 10 OCT 75 PAGE J1	00-06
FREG	DISTANCE (M)-> ANGLE (DEG)> CONDITION>	\$04	40 A	*** 4	7 9 4 0 4	3 € <	104 A 0	120 A	* # # <b>4</b>	160 A	184	¥0.4	45. 8.4 8.4	7 5 4 5 4
31.5		98	9 6	9	8	78	80	7.5	25	28	78	*	82	28
125		96	9.8	32	<b>4</b> 60	96	26	2 8 5 8	6 6	98	93	98	95	3 8
250		96	96	93	96	98	96	95	96	86	100	93	90	8 8
1000		88	88	88	9	9.4	85	92	85	82	88	88	88	87
2000		91	68	87	96	98	82	410	92	92	86	96	*	2:
900		93	26	16	6 6	99	98	<b>3</b> 6	6 2	98	95	2 2	200	2 2
OVERALL	CANADA TO SERVICE	103	102	101	100	100	66	66	100	102	104	101	101	66

0

5.1 ALDMO 1. 5.5 PEST PEST 1.

2 00 2	MEASURED SOUND PRE OCTAVE BAND	PRESSURE	LEVEL	600	702 EFG 677 (Q) FG	8 X	18 St 49 St	200 61	487 88	\$ \$ \$ \$		LOE	IDENTIFICATIONS OMEGA 3.2	TIONS
NOISE SOURCE/SUBJECT I A/M32A-60A GENERATO GAS TURBINE ENGINE NEAR FIELD NOISE LE	ISE SOURCE/SUBJECT: A/M32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS	-	OPERATION: GEN LOAD 3PH, BY NO AIR O	PERATION 6 GEN LOADED 100 3PH, BY M24T-8 NO AIR OUTPUT		MP, 240 VAC Load Bank,	22322	(11:50)				PAC 10	TEST 75-030 RUN 02 10 OCT 75 PAGE J2	00-06
FREQ (HZ)	DISTANCE (M)-> ANGLE (DEG)> CONDITION>	4 5 8 9 4 P	280 A	30 A	320 A A	340 A 0 4	.004	20 A	~34	~ 0.9 <b>4</b>	~ 8 <b>4</b>	100 A	2 120 A	140 A
31.5		91	92	28	98	95	98	98	8 %	68	25	66	93	93
125		94	93	36	98	46	96	96	36	96	97	96	99	100
500		88	8 8	92	95	46	66	86 6	86	96	*6	46	* 6	96
2000		48	8 0	63	80	66	91	93	93	6.0	8	68		2 6
0000		89	89	8 6	916	93	95	96 96	83	96	96	36	98	98
OVERALL		66	00	1.02	102	103	106	106	105	101	103	103	101	105

TABLE: HE.	MEASUREU SUUND PRE OCTAVE BAND	SSOR	IND PRESSURE LEVEL	609								) IDENTIFICATION: ) OMEGA 3.2
NOISE SOURCE/SUBJECT	E/SUBJECT:	-	OPERATIONS	. X			-		1			) TEST 75-030-00
A/M32A-60 GAS TURBI NEAR FIEL	A/H32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS		GEN LC 3PH, E NO AIR	N N2	GEN LOADED 100AMP, 240VAC 3PH, BY M24T-8 LOAD BANK, NO AIR OUTPUT	240V	, k		7.8 8 E		5526	) 10 OCT 75 ) PAGE J3
	DISTANCE (M)->	~ ~	~	~ ~	~	~ ~	~	~	* ~	2 ~	* 8	OPERATOR LOCATION
FREG	ANGLE (DEG)>	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
(ZHZ)	CONDITION>	•	•	4	A	•	4	•	•	•	•	<b>17.7</b>
31.5		93	92	91	68	89	88	68	6	96	92	93
63		46	46	93	95	91	95	*6	96	97	16	9.6
125	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100	101	100	66	86	26	26	96	96	95	102
250		104	106	103	101	96	16	26	97	96	100	102
200		100	103	26	95	95	92	96	93	95	66	3 101 C 101 S
1000		89	91	93	93	68	69	76	16	95	92	86
2000		96	95	88	88	87		98	60	91	91	93
0004	· · · · · · · · · · · · · · · · · · ·	66	102	16	93	95	96	93	*	26	96	97-11-24-15 97-1-12-12-12-12-12-12-12-12-12-12-12-12-1
8000		46	96	95	93	76	46	91	93	*6	97	5 - 08th rot 96th 3
OVERALL		108	110	107	1.05	104	103	104	103	105	106	A THE ROLL AND SPECIAL SECTION

TABLE: ME	MEASURED SOUND PRES OCTAVE BAND	SSUR	PRESSURE LEVEL	603						1		106	IDENTIFICATION:	TIONS
												- TES	TEST 75-030	30-00
A/M32A-60A GENERAT	A GENERATOR SET,		GEN LOAD	ADED	GEN LOADED 100AMP,	240VAC	• • • • •	10 10 10 10 10 10 10 10 10 10 10 10 10 1		u u u		2 0	10 OCT 75	(4.2)
NEAR FIELD NOISE L	D NOISE LEVELS		40 PSI	AIR	OUTPUT						63.1	) PAG	40 3t	
	DISTANCE (M)->	•		•		18 9	2 3	le la	0.3	***	5	10 M	P (0)	10.0
FREG	ANGLE (DEG)>	0	20	40	9	80	100	120	140	160	180	200	220	240
(HZ)	CONDITION	60	<b>6</b>	<b>6</b>	•	<b>&amp;</b>	•	8	<b>&amp;</b>	•	•	8	•	•
31.5		89	87	88	87	87	18	98	98	87	87	98	87	
63		96	96	96	95	95	93	91	95	93	91	90	90	96
125		96	93	36	91	92	91	89	93	93	95	76	93	91
250		66	66	96	96	96	96	96	66	101	103	100	66	96
200		96	96	95	95	91	90	90	93	97	96	76	91	96
1000		92	92	93	91	95	92	93	95	90	93	92	92	90
2000		95	93	06	87	89	06	68	88	88	90	87	87	*
0004		95	76	93	90	06	91	06	36	95	96	68	88	88
8000		16	<b>3</b> 6	91	98	28	88	89	83	89	91	88	44	98
OVERALI		105	101	201	•		•	,			707			

TABLES ME	2	SSUR	PRESSURE LEVEL	(08)								) I DE	IDENTIFICATION :	TIONS
7 00	OCTAVE BAND											NO.	EGA 3.	2
NOISE SOURCE/SUBJECT	E/SUBJECT:		OPERATION	. NO			~			9. V	5 9	25	RUN 05	75-030-002
A/H32A-60 GAS TURBI NEAR FIEL	A/H32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS		GEN L 3PH,	OADED BY M2 I AIR	GEN LOADED 100AMP, 37H, BY M24T-8 LOAD	240VAC	K,	1		1 (2 c) (2 c) 25 (1 c) (3 c)	10000	10 10 PAG	10 OCT 75 PAGE J5	
	DISTANCE (M)->		•		•		~	~	~	~	8	2	~	~
FREG	ANGLE (DEG)	260	288	300	320	340	•	20	3	9	80	100	120	140
(HZ)	CONDITION	•	•	<b>&amp;</b>	•	8	8	•	•	•	•	•		•
31.5		90	96	96	96	60	93	96	60	69	90	69	91	93
63		93	96	16	96	96	66	96	26	97	96	95	96	97
125		93	96	95	96	95	96	97	97	97	96	86	66	101
250		96	96	96	96	96	103	101	100	100	66	66	111	103
200		90	06	95	93	96	103	66	66	86	95	95	95	66
1000		68	69	96	93	36	76	93	92	92	*6	*6	76	16
2000		85	85	87	68	91	92	93	93	92	95	06	91	96
0004		68	88	68	92	93	97	96	8	95	96	95	95	*
0000		87	90	98	91	92	46	96	95	*6	95	76	93	\$
OVERALL			102	• • •	107	, 0,	•		*	300	700	406		

2 00 00	MEASURED SOUND PRE OCTAVE BAND	SSOR	PRESSURE LEVEL	600								ONEG	OMEGA 3.2
NOISE SOURCE/SUBJECT	E/SUBJECT:	5	OPERATION:	1 NO.	3	0.4	2	10	23	5 0 X	200	RUN (	75-030- 06
A/H32A-61 GAS TURBI NEAR FIEL	A/M32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS		GEN WPH,	OADED BY M2	GEN LOADED 100AMP, 240VAC 3PH, BY M24T-8 LOAD BANK, 40 PSI AIR OUTPUT	240V	^	0 n 0 0 0 0	50 第 3	(8 d) (8)	(2 (2) (3) (3) (3)	) 10 OC	OCT 75 E J6
FRFO	DISTANCE (M) ->	25	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2	25	25	25.0	28.0	2 5	2	25	OPERATOR LOCA	OR LOCATION
(HZ)	CONDITION		6	6	8	8		8	6	8			1/8
31.5		96	95	95	93	91	68	68	06	60	96		92 300
63		96	95	96	76	*6	93	95	96	46	66	63	
125		103	103	103	101	100	100	100	66	26	97		104
250		106	101	105	102	100	66	100	100	100	101		
200		102	103	66	96	46	16	16	36	16	100		102
1000		93	46	26	95	95	95	66	76	*6	16	in the	
2000		90	93	68	87	98	98	87	89	90	95		
0004		86	100	- 66	93	95	66	93	93	- 66	46	1000	96
9000		96	95	95	93	96	93	93	95	96	96		96
OVERALL		110	111	109	1.0	105	105	106	105	106	107		189

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TABLE: MEASURES OF HUMAN NOISE	NOISE	EXPOSURE	URE								LOEN	IDENTIFICATION:	TIONS
•											) OMEGA		30-00
NOISE SOURCE/SUBJECT:	٥.	OPERATIONS	. NO								S C		
A/H32A-60A GENERATOR SET,			GEN LOADED	100AMP,	, 240VAC	AC .					97	10 OCT 75	
GAS TURBINE ENGINE DRIVEN NEAR FIELD NOISE LEVELS		3PH, B	BY M24T-	2 5	BY M24T-6 LOAD BANK, R OUTPUT	3					PAGE	¥ 3	
DISTANCE (M)->	•	4		,			•	4		•	•		•
ANGLE (DEG)>	04	A 20	<b>3</b> 4	9 A	0 4	100 A	120 A	140 A	160 A	18 A	200 A	220 A	240 A
				100				1 10					1
,,,			COASLC IN	08C)			3				í		
NO PROTECTION	<u>۔</u>	NTW NT	MINUTES	FUK ONE	E EXPUSURE		PEK DAT	APR	161-55, JULY	, 300.	3		
	102	101	101	66	66	98	96	100	101	104	101	100	66
OASLA	66	86	97	95	32	93	16	96	26	101	96	96	*
MINIM ORI EAD MIEES	36	24	20	7	2	101	92	3	20	52	9	9	82
OASLA*	62	7.8	11	92	25	42	*2	76	7.8	9.0	7.8	11	75
	960	096	096	096	096	096	960	960	960	960	960	196	960
TICAL 1700 EA	R MUFF	S											
OASLA*	7.	73	73	72	7.	20	2	72	73	15	73	72	12
V-640 640 01 1150	096	960	096	960	960	196	960	960	960	196	960	960	196
OASLA*	42	73	72	22	20	69	69	11	73	75	73	72	20
	096	096	0	096	096	096	096	096	096	196	196	960	960
AMERICAN OPTICAL 1700 EAR		S			2	:	1	1	:	•			1
URSLAT	960	960	96.0	96.0	96.0	96.0	96.0	8 5	2 5	96	96.0	9	96.0
H-133 GROUND COMMUNICATION UNI	NO NO	-	}	;	}			•		•	}		}
OASLA*	73	7.1	7.0	69	69	29	29	2	20	75	69	69	99
	096	096	096	960	096	960	096	960	960	096	196	960	196
COMMUNICATION PREFERRED SPEECH INTERFERENCE	FRENC	E LEVEL		Z	(80								- 10 10 10 10
	91		68	87	98	85	92	- 87		16	8	87	98
ANNOYANCE PERCEIVED NOISE LEVEL, TONE CORRECTION (C IN D	TONE	CORREC	TEO (P	CORRECTED (PNLT IN PNDB)	PN08)								
	116	114	41,	112	112	110	#	11,	# "	119	113	113	Ξ.

GEN LOADED 100AMP, 3PH, BY N24T-8 LOAD NO AIR OUTPUT  28	20 A B B C 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	¥	CAFR 102	2 60 A 161-35,	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2 10 0CT 1 1	1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	204 400 M
ELEVELS ( GEN LOADED 100AMP, INE BRIDGELS ( 3PH, BY M24T-8 LOAD ELVELS ( NO AIR OUTPUT ( 100 AIR OUTPUT ( 10	7 79 21 21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				20 V	10 0 10 0 10 0 10 0 10 0 10 0 10 0 10	103 103	717 704 700 700 700
ERALL SOUND LEVEL (OASLC IN DBC) AT STIBLE TIME (T IN MINUTES) FOR ONE 94 94 97 97 97 85 85 85 50 960 960 960 960 960 960 960 960 960 96	7 79 21 21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				20 V	PAGE 100	A 1 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	110 A 00 W
ELEVELS ( NO AIR OUTPUT  NCE (H) -> 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	- Barrier - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		그 그들은 내 보다 보다 보다는 이 경기를 가지 않는 것이라고 있었다. 그 사람들은 사람들은 것이 되었다고 있다.		8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	PAGE 1000 A A A A A A A A A A A A A A A A A	A A B B B B B B B B B B B B B B B B B B	11 A 20 M
NCE (M) -> 4 4 4 4 4 6 (DEG)> 260 280 300 320 32 37 37 110N> A A A A A A A A A A A A A A A A A A					80 80 JULY	2 100 A 73)		217 A 112 A 100 M
TION> A A A A A A A A A A A A A A A A A A					A	33 A 05		4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
TION> A A A A A A A A A A A A ERALL SOUND LEVEL (OASLA IN DBA) AT SSIBLE TIME (T IN MINUTES) FOR ONE 94 97 97 97 97 97 97 95 75 75 78 78 78 79 79 79 79 79 79 79 79 79 79 79 79 79					A TOTAL	4 E		A 100
ERALL SOUND LEVEL (OASLG IN DBG) AT ERALL SOUND LEVEL (OASLA IN DBA) AT SSIBLE TIME (T IN MINUTES) FOR ONE 94 94 97 97 94 94 97 97 85 85 50 50 HUFFS 75 75 78 78 1 1700 EAR MUFFS 71 74 73 960 960 960 960 960 960 11700 EAR MUFFS PLUS V-51R EAR PLU 55 55 59						£	103	100
ERALL SOUND LEVEL (OASLG IN DBC) AT ERALL SOUND LEVEL (OASLA IN DBA) AT SSIBLE TIME (T IN MINUTES) FOR ONE 94 97 97 97 97 95 95 96 960 960 960 960 960 960 960 960 960						£	19 29 29	100
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE OASLA  OASLA  T  OASLA  T  OASLA*  FRICAN OPTICAL 1700 EAR MUFS  T  51  71  74  73  T  OASLA*  69  69  72  73  T  OASLA*  FRICAN OPTICAL 1700 EAR MUFS  OASLA*  FRICAN OPTICAL 1700 EAR MUFS  T  FRICAN OPTICAL 1700 EAR MUFS  OASLA*  69  69  72  73  T  OASLA*  FRICAN OPTICAL 1700 EAR MUFS PLUS V-51R EAR PLUS  OASLA*  FRICAN OPTICAL 1700 EAR MUFS PLUS V-51R EAR PLUS  OASLA*						733	103	100
DASLC  0ASLC  0ASLC  0ASLA*  NIMUH QPL EAR MUFFS  T  0ASLA*  0ASLA*  T  51R EAR PLUGS  CASLA*  1 74 73  51R EAR PLUGS  ERICAN OPTICAL 1700 EAR MUFFS  T  0ASLA*  1 74 73  51R EAR PLUGS  ERICAN OPTICAL 1700 EAR MUFFS  T  T  0ASLA*  55 59 59	106 102 21 21 679		102				103	100
54 57 101 101 101 101 101 101 101 101 101 10	678 21		21			101	66	100
85 85 50 50 75 75 78 78 960 960 960 71 74 73 960 960 960 69 69 72 73 960 960 960 EAR MUFFS PLUS V-51R EAR PL	679		21	100		5	**	30
75 75 78 78 78 960 960 960 960 960 960 960 960 960 960	679				36	36	20	
75 75 78 78 78 96 960 960 960 960 960 960 960 960 960	679							
960 960 960 960 11 71 74 73 960 960 960 960 69 69 72 73 960 960 960 10 EAR HUFFS PLUS V-51R EAR PL	679		91			62	90	81
00 EAR MUFFS 74 73 960 960 960 960 960 960 960 960 960 960	7.8	679	807		960	096	196	807
71 71 74 73 960 960 960 960 69 69 72 73 960 960 960 00 EAR HUFFS PLUS V-51R EAR PL	920							
960 960 960 960 69 69 72 73 960 960 960 90 EAR MUFFS PLUS V-51R EAR PL 55 55 59 59			92		22	2	92	11
69 69 72 73 960 960 960 960 00 EAR MUFFS PLUS V-51R EAR PL 55 55 59 59	200	6 096	096	6 096		096	196	960
69 72 73 961 961 961 960 00 EAR MUFFS PLUS V-51R EAR PL 55 55 59 59						i	1	ì
960 960 960 960 00 EAR MUFFS PLUS V-51R EAR PL 55 55 59 59	92		2	2		2	52	9
00 EAR MUFFS PLUS V=51R EAR PL 55 55 59 59	960	960	196		196	196	796	960
gc 66 66	.,	;	;				•	;
430 030 030	700	200	200	000				100
117 Joe 106			200			200	300	300
68 70 71	75	75	76	14		7.3	7.3	7.4
6 096 096 096	960		096		096	196	961	960
(PSIL								
06 68 58 98	93	*6	*6	<b>1</b>	91	26	91	4
LEVEL,								
ORRECTION (C IN 08)								
PNLT 112 112 114 114 116	119	117 1	118	118	117	117	117	119

\* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

SET   ( OPERATION! ( OPERATION! ( OPERATION! ( SPH, BY M24)   ELS ( NO AIR OUTP! ( SOUND LEVEL (OASLC IN SOUND
CATIC CATIC

3	HUMAN NOISE	EXPOSURE	RE								DENTI	-	TIONE
NOISE SOURCE/SUBJECT:	0	OPERATIONS	. Z			~					RUN	04-030	30-05
and desired to tour													
CAS TIPOTHE ENGINE DETVEN		SEN LUADED	MUED	TOUAMP,	240VAC	200					10	10 OCT 75	
NEAR FIELD NOISE LEVELS			AIR	DUTPUT	SI AIR OUTPUT						PAGE	H 4	
										•	•		
ANGLE (DEG)>	<b>,</b>	200	1 5	<b>4</b> 6	<b>1</b> &		120					220	240
	. 60					0	8	8	8	8	8 8	3 8	8
HAZARO/PROTESTTON													
ERALL	LEVE		ILC IN	080				A					
A-WEIGHTED OVERALL SOUND MAXIMUM PERMISSIBLE TIME	LEVEL		H.	DBA)	AT EAR		DEP DAY	CAFR	161-15.	¥ III	73.0		
1							-		-		51		
	104	104	103	101	101	101	100	102	104	106	103	102	100
	101	101	100	26	46	86	86	66	66	102	96	97	96
	52	52	30	20	20	42	45	36	36	21	45	20	2
MINIMUM QPL EAR MUFFS			1	1	1								1
DASLA	80	80	62	11	77	11	92	78	80	95	13	1.8	26
22.		196	096	960	096	960	960	096	096	619	196	960	960
CASIA*	75	76	36	**			**	•		:		;	
	960	96.0	96.0	96.0	96.0	27	96.0	96.0	96.0	0 0	96.0	040	270
V-51R EAR PLUGS			;					2	2				3
OASLA*	92	92	75	73	73	73	73	74	76	7.8	75	7.4	72
	096	096	096	096	960	096	960	096	096	096	960	960	960
AMERICAN OPTICAL 1700 EAR	MUFFS		V-51R		PL UGS								
OASLA*	61	61	19	28	58	28	66	29	9	62	9	29	25
1960 TIMI WOLLD COMMINICATE THE	960		960	096	960	096	960	960	960	960	960	960	960
	7,7		13	20			7.	33		36			•
	096	960	960	960	1 96	96.0	96.1	96.0	96.0	96.0	1 96	96.0	96
													}
PREFERENCE CPEFCH INTERFERENCE	DENCE			2	180								
	93	93	93	8	90	9.0	91	16	92	76	91	96	88
ANNOYANCE													
PERCEIVED NOISE LEVEL, TO	N	CORRECTED (PNLT IN PNDB)	E0 (P	NL T IN	PNDB)								
Ca 4 20 4	118	117	116	113	113	113	113	115	115	118	113	113	111
•	•	•											

The state of the s

3	NOISE	HUMAN NOISE EXPOSURE	URE								DOMEGA	ONEGA 3.2	TIONS
MOISE SOURCE/SUBJECT:	-	OPERATION	. NO								S S		
		- Nas		*****								36 300	
AND THOUSENERS OF SELP		SEN L	LONDED.	TOOMER'S		2					2	10 00 12	
NEAR FIELD NOISE LEVELS			I AIR OUTPUT	00.17	CAL BANK,	•					PAGE	E H5	
DISTANCE (M) ->	,		•	*	•	~	~	8	~	2	8	~	8
ANGLE (DEG)>	260	280	300	320	m	- 0	50	3.	9 6	0 0	100	120	140
ATTENDED TOWNS		0				0		0			0		20
A-WEIGHTED OVERALL SOUND	NO LEVEL		COASLC IN	080	AT EAR								
BLE	HE CT		2		ш	SURE	PER DAY	CAFR	161-35,	JULY	133		
	101	101	102	103	103	108	106	106		105	105	105	107
OASLA	96	96	26	66	100	104	103	102	101	102	101	101	102
	9	9	20	36	30	15	18	22		21	52	25	21
MINIMUM QPL EAR MUFFS													
OASLA*	11	28	78	2	80	84	82	82	82	81	81	82	94
	or .	960	960	960	096	084	619	619		208	208	619	480
PTICAL 1700 EA	R MUFF	0	•	1			í	i	-	1	1		-
OASLA*	200	* 5	2 0	520	5 2	0 0 0	2 5	200	,	200	200	2.5	200
200	200	300	300	200	200	300	960	200		200	300	306	200
V-SIR EAR PLUGS	12	7.1	73	75	75	8.0	7.8	7.8	92	92	76	11	7.8
1	960	960	960	960	096	096	960	096		096	096	96.0	960
AMERICAN OPTICAL 1700 EAR	R MUFF	S	V-51R		PLUGS					1000			
	25		29	9	61	69	63	63	62	62	62	62	99
1	960	960	960	960	960	096	096	096		096	096	096	960
TO NOTIFICATION COMPONICATION ONL	TNO NO		3.	1.0	•	3.5	36	36		3.5			
URSEA	96.0	96.0	0 40	960	2 9	96.0	2 6	040	200	0,0	* 00		040
	?	1	}					3					200
COMMUNICATION SPECUL TATES	ON JOSE			3	100								
4.4	ANTERFERENCE 88	88	90	92	95	96	95	95	76	95	93	93	16
ANNOVANCE													
IVED NOISE LEVEL,	TONE	CORRECTED (PNLT IN PNDB	TED (P	NLT I	N PNDB)								
	112	112	113	115	116	120	119	119	118	118	118	116	118

3	NOISI	IUMAN NOISE EXPOSURE	SURE								DOMEGA	IDENTIFICATIONS OMEGA 3.2
NOISE SOURCE/SUBJECT:	-	OPERATION:	ONE			^					SE SE	90
ACHION-COA CENEBATOR SET		MAS	SEN : OF DED 100 AND	****	DAUDAR O							10 OCT 76
GAS TURBINE ENGINE ORIVE		3PH.	BY M24	T-8-T								,,
NEAR FIELD NOISE LEVELS	-	40 PSI	I AIR	OUTPUT	I AIR OUTPUT						PAGE	E #6
DISTANCE (M) ->	2 160	2 180	200	220	240	250	280	300	320	340	PERATOR	OPERATOR LOCATION
CONDITION	8	•		0	•	0	6	8	0			1/8
HAZARD/PROTECTION					:		13					
u		LEVEL (O/	COASLA IN	000	A) AT EAR	SURE	PER DAY	CAFR	161-35.	AME	733	
,												
OASLC	109	110	108	106	105	104	105	105	105	107		109
DASLA	104	106	103	101	100	100	101	100	101	103		105
2000	12	11	18	52	30	30	52	30	52	18		13
DASIA*	A A	87	n a	8.7	A.2	4	8.2	82	82	83		AL
	339	285	404	571	679	807	679	629	679	571		339
AMERICAN OPTICAL 1700 EAR	R HUFF	S	0 0 0 0				40					
	82	82	81	62	11	77	7.8	11	11	7.8		110
	619	619	807	960	096	096	096	096	096	096		807
V-51R EAR PLUGS					er i	17 1						200
OASLA*	81	85	8	11	75	75	11	92	11	29		81
		۳,	960	960	960	196	960	960	960	196		907
AMERICAN UPITCAL 1788 EAR	7 7 7 7	5 PLUS	4-21K	FAR	r. U63	4.4	23	63	6.3	44		
	96	96.0	96.0	960	960	196	960	96.0	96.0	96.0		96.0
H-133 GROUND COMMUNICATI	CATION UNI	-	A Bre									
	11		92	74	4.2	42	7.4	12	12	92		7.8
おお 一般に が 一切の	096	096	960	960	960	096	960	096	960	096		096
COMMUNICATION PREFERRED SPEECH INTERI	NTERFERENCE 95	SE LEVEL	il (PSIL 95	NH 6	08)	91	86	86	£6	95		86
VEL,	TONE		CORRECTED (PNLT IN PNDB	AL I	N PNDB)		Line of the second					0-920 25
CC IN	08)	133	9,	•	•	•		416	:			.51
THE RESIDENCE OF THE PROPERTY	177	153	117	011	011	011	177	011	011	121		177

\* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

4	1/3 01S1	1/3 OCTAVE DISTANCE =	BAN	D METERS	RS													OMEGA	1.4	
NOISE S	SOURCE/SUBJECT	SUBJE	5T:		80	OPERATION	ž					METEOROLOGY	OLOGY				1	RUN	01	200-
GAS T	GAS TURBINE ENGINE FAR FIELD NOISE LE	GENERAT ENGINE IOI SE LE		ORIVEN JELS		GEN LO 3PH, B NO AIR	A HE	LOADED 100AH BY M24T-8 L AIR OUTPUT	LOAD (	240VAC BANK,		BAR	PRESS	9.	28 H	9		15 OCT 75	2 2	
FREG	5								=	ANGLE (	(DEGREES)	EES)								
(HZ)	•	-	97	20	30	3	20 +	9	2	8	96	100	110	120	130	140	150	160	170	100
25		82<	814	814	824	814	784				77.		-	784		774			794	794
31.	.5	814	-	824	794	77.	814		,			77.	•	784		774				
04		814	80	80	77	77.	794	774	774	11	764			774		794			784	774
50		824	814	824	814	814	794	814	794	,784	784	814	794			784	764	764	784	11
63		85	87	92	92	<b>10</b> .	814	85	98	83			814						784	774
80	OF BUT IS A	85	85	85	18	85	84	83 4	94	83	82		80						904	79
100		86.	85	85	85	96	82	82	91	81	8		81	81	82				10	8
125		90	88	90	87	48	83,	83	80	91	91	83	83	63					8	8
160		68 \$	90	88	88	86 .		10	85	96	83	9.4	10	91					92	82
200		80	81	81	82	80	80	80	62	28	11	75	11	78					11	2
250		80	81	82	80	82	80	82	8	90	90	11	11	2	11				28	2
315		80	81	81	77	11	11	11	11	11	75	74	72	72	73				82	79
004		30	81	11	78	92	1.	14	75	7	73	7.4	75	2	22				98	98
200		94	94	9.4	83	11	79	77	1.	2	11	73	92	72	75				92	82
630		83	82	81	62	11	79	83	15	11	7.8	7.8	80	7.8	18				82	85
800		81	62	77	92	75	79	81	11	28	79	11	2	11	7.8				2	2
1000		22	11	7.1	2	11	2	7.1	2	69	67	69	69	2	12				11	11
1250		72	73	7.1	7	72	11	69	20	69	99	69	99	89	69				2	73
1600		7.1	73	72	72	11	20	20	69	89	29	99	29	99	29			99	2	2
2000		92	78	77	62	92	75	14	72	69	7.1	69	69	69	69			-	73	2
2500		81	62	81	11	79	13	80	62	11	77	77	11	75	92				82	83
3150		98	82	82	82	82	83	82	80	80	77	11	11	2	90				91	6
4000		82	82	81	82	80	00	80	62	92	75	11	12	75	75				87	87
5000		92	62	77	77	28	75	14	7.4	2	7.	69	69	69	20				92	78
6300		7.8	90	7.8	78	. 78	75	73	73	2	69	7	2	69	11			72	91	=
8000		78	62	29	2	79	16	73	72	2	11	7.1	72	12	12				2	2
10000		82	96	*	*	40	1	7.8	28	2	22	7.4	22	2	2				2	
OVEDALL		07	07	0.7	9	ď	40	10		00	00	92	6	6		92	93	6.3	*	9

TABLE:	HEASURED 1/3 OCTA DISTANCE	MEASURED SOU 1/3 OCTAVE B DISTANCE =	PET	PRESSURE		LEVEL	(08)											OMEGA	ONEGA 1.4
NOISE SOI A/H32A- GAS TUR FAR FII	URCE/S	ISE SOURCE/SUBJECTI A/H32A-60A GENERATO GAS TURBINE ENGINE FAR FIELD NOISE LEV	TOR S VELS	DR SET, DRIVEN		GEN LOAD 3PH, BY	ATION: N LOADED 100AMP, 240VAC H, BY N24T-8 LOAD BANK, AIR OUTPUT	100A	OAD L	FOVAC BANK,	20000	HETEOROLOGY TEMP BAR PRESS REL HUMIO	PRESS		× 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 3 3		RUN 03	75
FREQ (HZ)	_		190	200	210	220	230	240	250 A	NGLE 260	(DEGREES) 270 280	EES)	290	300	310	320	330	340	350
25																800	824	*18	914
70,4			764					764			764	764	764			794	804	814	814
20			77	764	77.	77.	784	784	764	2	794			784	784		79.	è	814
200			794	784	784	797	784	774			794			2 2	83		**	938	202
100			8	62	80	80	62	79	7.8		2	11	8	93	83	100	83	:	83
125			62	80	13	81	83	83	85	95	93		2	8	82		96	95	97
160			83	83	31	80	12	79	82	83	4 6	40	93	82	0	85	96	96	92
250			2 2	2.2	2	22	22	30	72	2.2	12	2	8 2	1 2	8 1	9 0	192	20	282
315			82	80	7.8	75	73	73	72	2	73	74	92	75	92	22	2	92	11
004			85	82	80	79	75	14	73	72	7.1	72	72	73	1.	11	7.8	4	7.8
200			94	00 e	2 2	77	22	2.	12	73	2:	21	12	:	120	11	2.5	92	8:
800			81	282	78	22	2	10	200	28	120	1,6	2 2		9	8	2	72	75
1000				77	25	23	68	69	69	29	29	67	99	7	73	72	12	20	2
1250			72	72	70	69	69	68	89	29	69	69	69	20	20	69	72	20	69
1600			69	69	89	69	68	29	89	29	29	99	29	99	69	69	11	7.1	69
2000				20	72	20	72	72	2	11	7.0	7.	75	16	16	11	92	11	75
2500			81	92	7.4	75	92	16	75	2	73	75	22	2	11	18	28	90	26
3150			82	82	62	11	28	11	18	7.8	62	79	11	79	29	1.8	80	91	10
000			80	62	11	12	9:	12	92	9:	9:	200	2:	2:	2	2;	8;	8;	21
2000			12	12	25	2 4	::	200	2 .	25	20	2:	2 2	2:	::	::	2:	2;	2
8000			14	7.5	72	22	200	72	2:	22	22	::	22	22	2 %	22		2 2	22
10000			18	20	18	32	22	2.2	12	2.2	2	19	22	22	85	2.5	85	: :	22
OVERALL	_		*	36	91	8	96	06	91	96	16	91	92	93	93	*	66	*6	*

A/M32A-60A GENERAT A/M32A-60A GENERAT GAS TURBINE ENGINE FAR FIELD NOISE LE FREQ 0 (HZ) 0 25 82 25 82 25 82	JECT:		METERS		BAND 10 METERS											OMEGA	GA 1.4	ONEGA 1.4
	E LEVE	OR SET, DRIVEN		OPERATIONS GEN LOAD 3PH, BY	N S N D E D IY M 24	ERATION: GEN LOADED 100AMP, 2 3PM, BY M24T-8 LOAD 40 PSI AIR OUTPUT		240VAC BANK,	¥	HETEOROLOGY TEMP BAR PRESS REL HUHID	PRESS HUMID		OEN	9	1	RUN 0 15 OCT	75	200-
	0 10	02	30	9	50	90	A P	ANGLE (	(DEGREES) 90 100	ES)	110	120	130	140	150	160	170	180
					96	864	814	81<	784	864	***	824	794					
		81< 85< 82< 84<	834	824	824	834	32.	79.4	774	814	34	262	774		774	774	794	814
50 2					844	824	814	784	794	794	804	764	794	774	784	784	794	814
		88		98	28	98	98	3	3	814	83	93	83	914	824	814	914	814
100				86	8 00	0 M	9 8	\$ 2	8 2	* 2	3 2	2 00	2 5	20	2 8	0 M	200	8
		9 91	88	87	94	85	83	83	94	96	96	96	96	92	83	93	93	82
160 91				87	98	87	87	98	28	98	92	85	85	96	98	90	87	8
200 8:				85	81	63	82	80	80	18	62	90	81	80	85	91	82	82
	6	63	82	28	6 6	28	20	29	28	90	90	21	90	93	2 2	9 1	200	20 0
o <b>«</b> 0				26	26	16	26	2.5	2 2	26	12	7.8	2			9	98	5
500	3			2	80	62	77	12	62	26	7.8	78	80	83	98	87	88	63
630 89	5 83	8 83	90	62	81	83	8.2	90	81	80	95	83	95	83	83	98	98	89
800 8	5 80			82	82	9.4	83	93	83	82	83	10	98	94	83	82	19	96
			11	78	78	7.8	62	82	90	82	83	85	10	81	82	90	00	85
	5 72			92	75	92	92	11	62	80	9.1	82	9.1	29	29	18	11	83
		1 75		1.	1.4	92	92	11	62	62	90	91	18	11	11	92	73	79
2000 85				92	77	22	92	11	00	62	00	00	90	11	11	7.8	14	19
				28	28		62	90	81	80	91	83	80	79	29	7.8	79	98
	62 9			85	82		81	83	83	82	83	92	96	*	93	82	82	36
				91	82	82	81	83	95	83	10	**	**	92	83	83	83	91
				11	92	92	11	62	82	81	83	82	83	83	81	80	80	98
		17		11	75	14	92	11	90	95	95	78	91	10	8	8	62	92
THE PERSON NAMED IN	8 77	17	92	11	75	75	15	62	80	90	2	62	91	29	8	80	79	82
10000 82	2 84	4 85		93	80	62	62	11	2	2.0	2	18	2	62	2	8	2	ı
OVERALL 99	9 97	96	96	16	96	96	95	95	96	96	96	96	96	96	96	96	96	100

A Company of the second second

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

4 1/3 OCTA	A	O METERS	u													OMEGA	OMEGA 1.4
NOISE SOURCE/SUBJECT	UBJECT		90	OPERATION:	ž				~ ·	METEOROLOGY 8	L06 Y		•		1	RUN	04
	ENERATOR S	ET,		GEN LOADED	ADED	100AMP,	P. 24	240VAC		BAR P	PRESS	= .693		HG		15 OCT 75	1 75
GAS TURBINE ENGINE FAR FIELD NOISE LE	ENGINE ORI ISE LEVELS	ORIVEN		D PSI	AIR AIR	3PH, BY M24T-8 LOAD 40 PSI AIR OUTPUT	0A0 B	BANK,		REL H	UMIO		- 1			PAGE	2
FREQ							Z		DEGRE	ES)							
(HZ)	190	200	210	220	230	240	250	260	270 280	280	290	300	310	320	330	340	350
25	77.	794	784				77.	814		814	814	814	794	864	844	89	87.4
31.5		764	77.					814		794	784		774	944	96	60	824
0,4	794	784	80	784	764	764	784	>62	784	794	774	774	784	944	944	87	814
50	794	194	794	794	814	784	784	794	784	794	784	784	784	824	834	87	814
63	814	82	824	794	82	794	194	814	814	824	83	92	90	98	98	90	96
98	85	94	40	91	82	804	91	91	83	83	*	96	92	90	96	97	92
100	**	94	9.4	85	83	80	80	90	90	91	83	**	96	96	96	92	*
125	**	86	92	96	87	98	87	87	82	92	83	93	83	96	87	60	68
160	87	98	96	82	92	8	98	88	96	87	98	*	83	9.4	88	68	68
002	9	29	83	29	28	61	9 1	2	8	81	83	92	83	80	82	83	28
145	2 3		200	20	102	2.2	11	22	11	91	92	00	9 9	10	2:	2:	5.6
600		1 4		2	26	**	22	2 4	14	: 2	2 5	2 2	25	25	1 5	2	::
200	5	87	8	2	2 2	82	2.8	7.2	11	75	2 2		7.0	200		200	**
630	87	82	94	91	63	8 2	83	83	91	82	82	**	82	90	2	2	15
800	98	10	98	85	92	88	96	96	40	94	*	96	98	98	*	82	83
1000	63	83	96	83	90	87	85	10	83	83	95	91	90	00	81	1.8	18
1250	80	80	29	8	11	83	83	83	82	80	90	62	11	22	7.8	75	11
1600	11	14	92	11	92	81	81	80	62	18	29	11	92	22	7.8	26	75
2000	92	92	92	92	92	94	83	81	8	80	80	8	80	29	80	00	8
2500	91	18	2	92	26	83	83	10	80	90	28	22	79	7.8	8	91	8
3150	85	85	95	2	80	89	88	96	85	94	82	18	81	82	83	92	**
0004	82	83	8	62	28	87	88	88	87	98	92	83	83	82	94	**	98
2000	79	7.8	78	92	73	83	83	82	82	81	00	11	18	75	11	8	82
6300	8	18	11	92	22	83	85	8	80	29	2	92	11	26	11	4	83
9000	78	11	92	22	73	7.8	62	28	11	92	15	2	75	1.4	22	11	**
10000	00	28	7.8	11	22	90	90	2	62	11	2	90	80	91	95	*	98

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

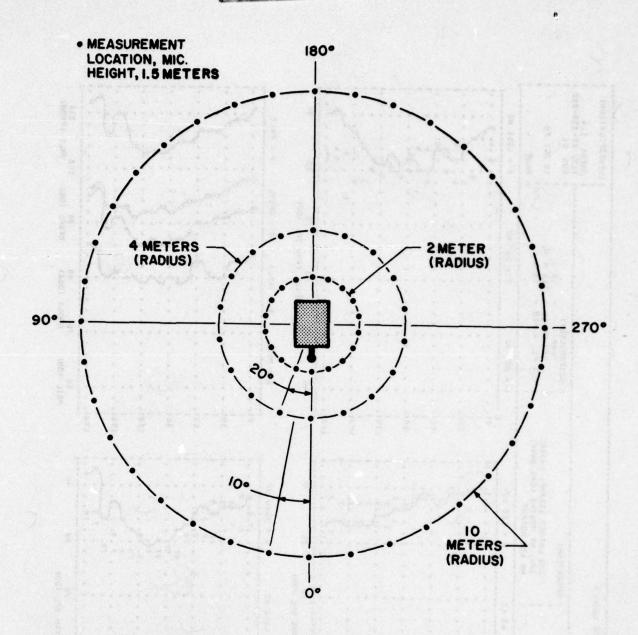
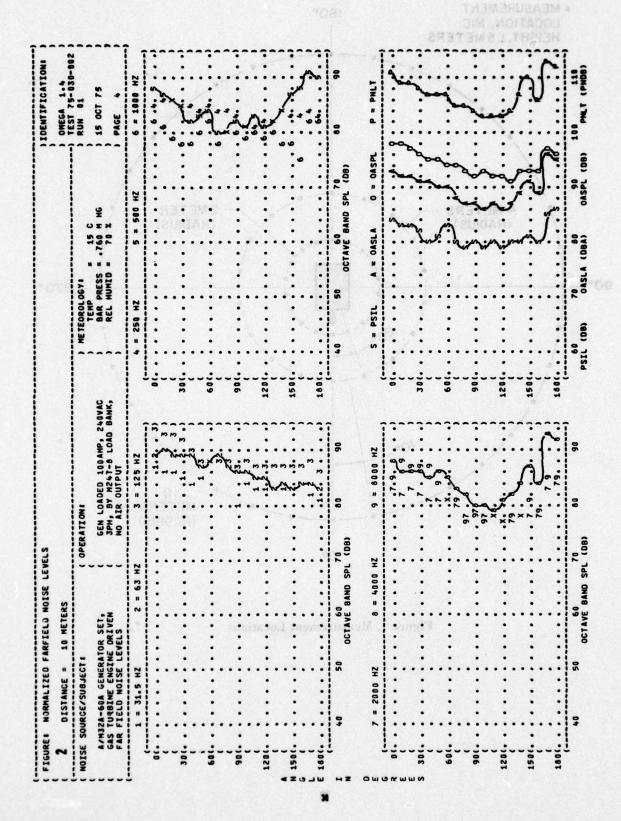
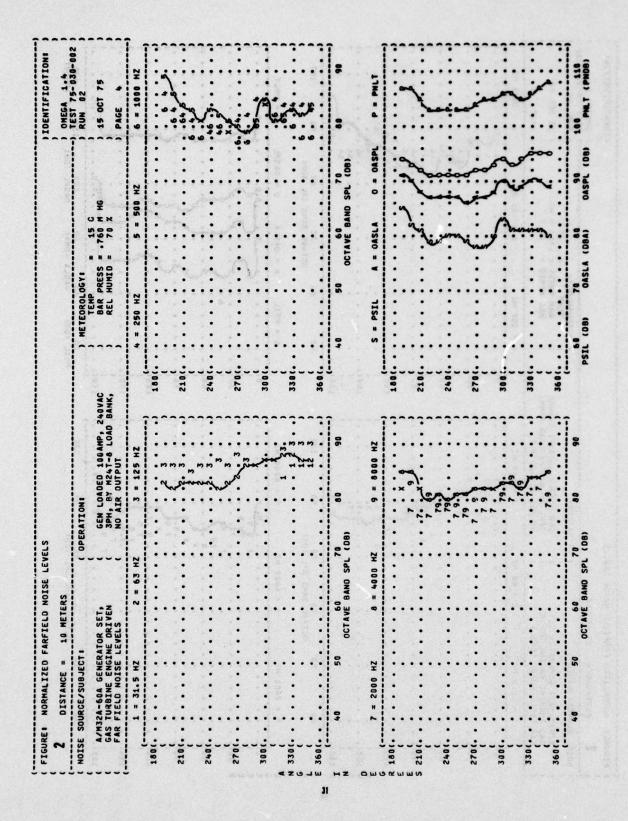
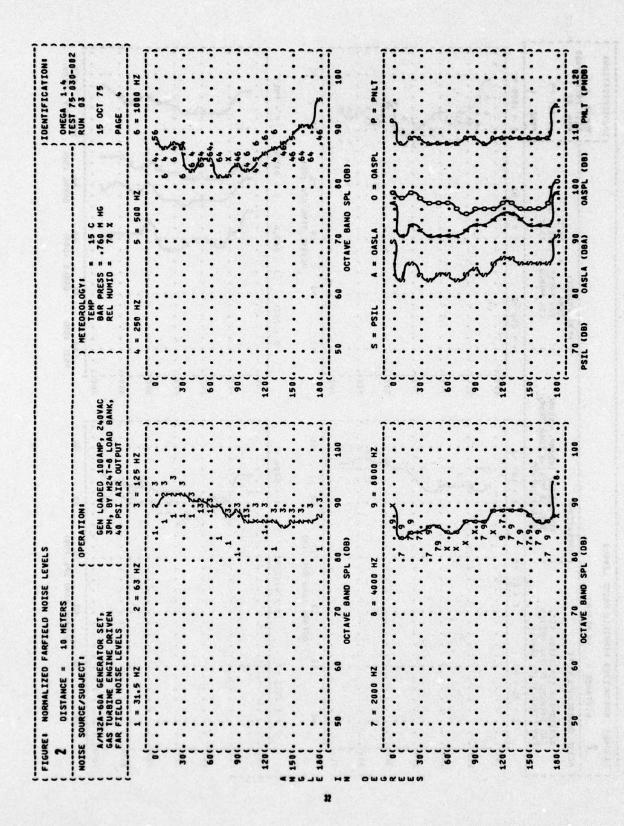


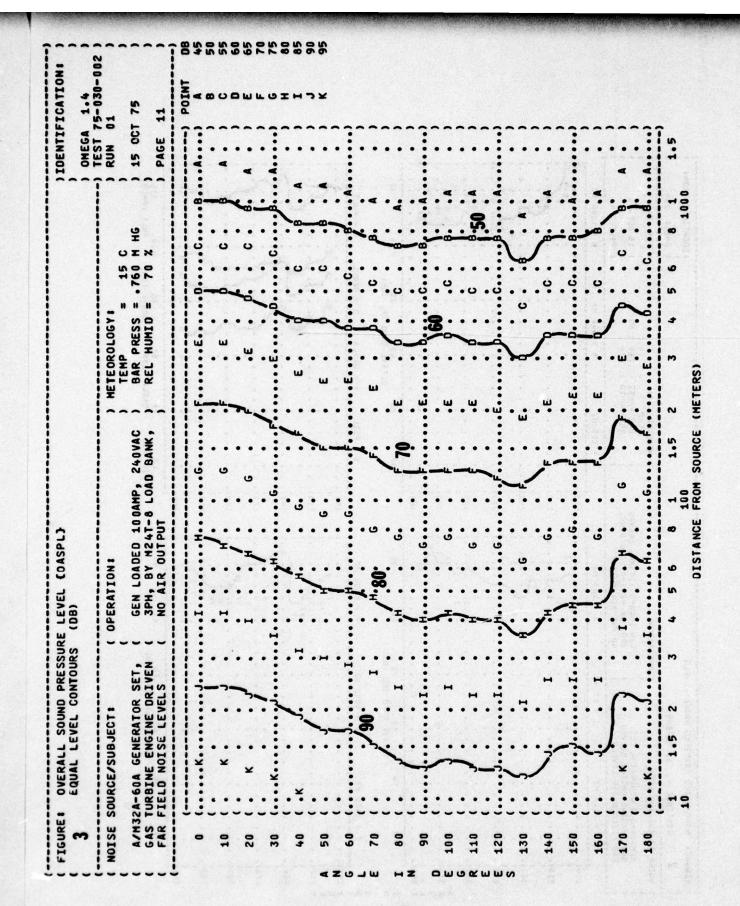
Figure 1. Measurement Locations



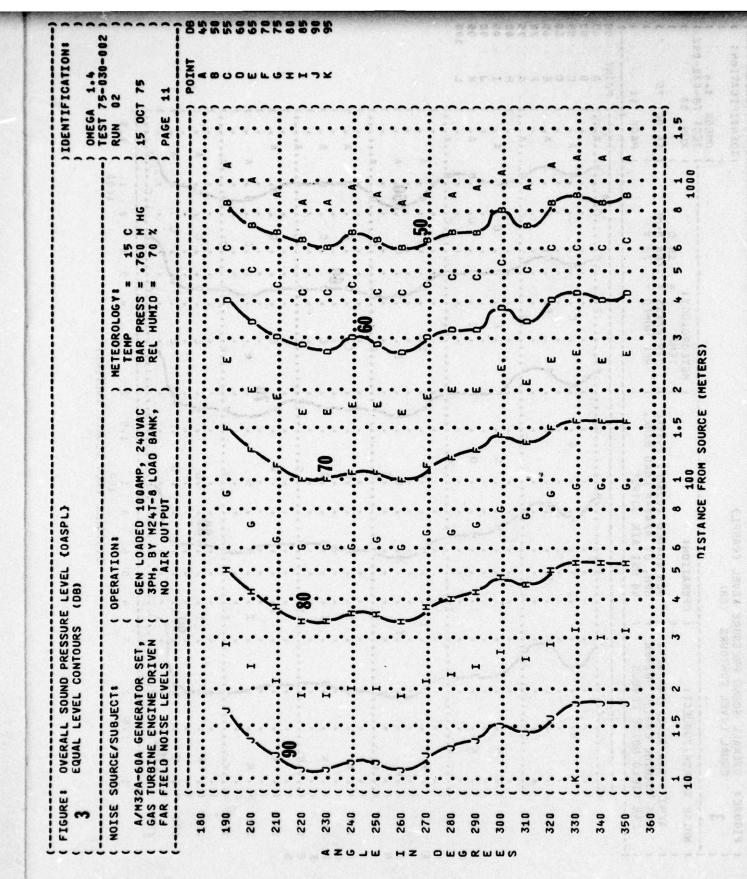


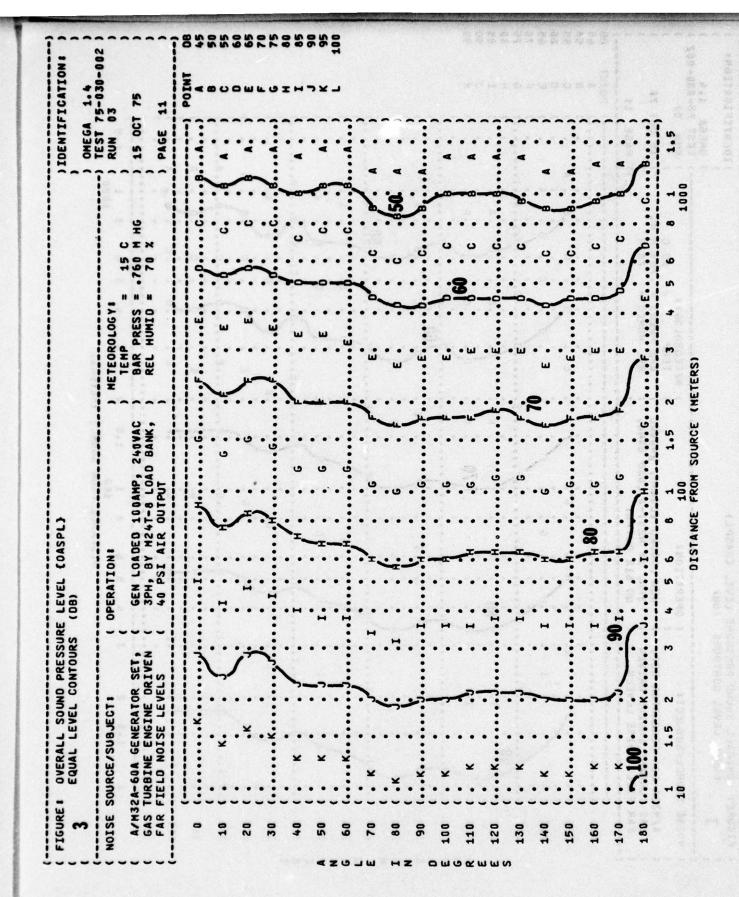


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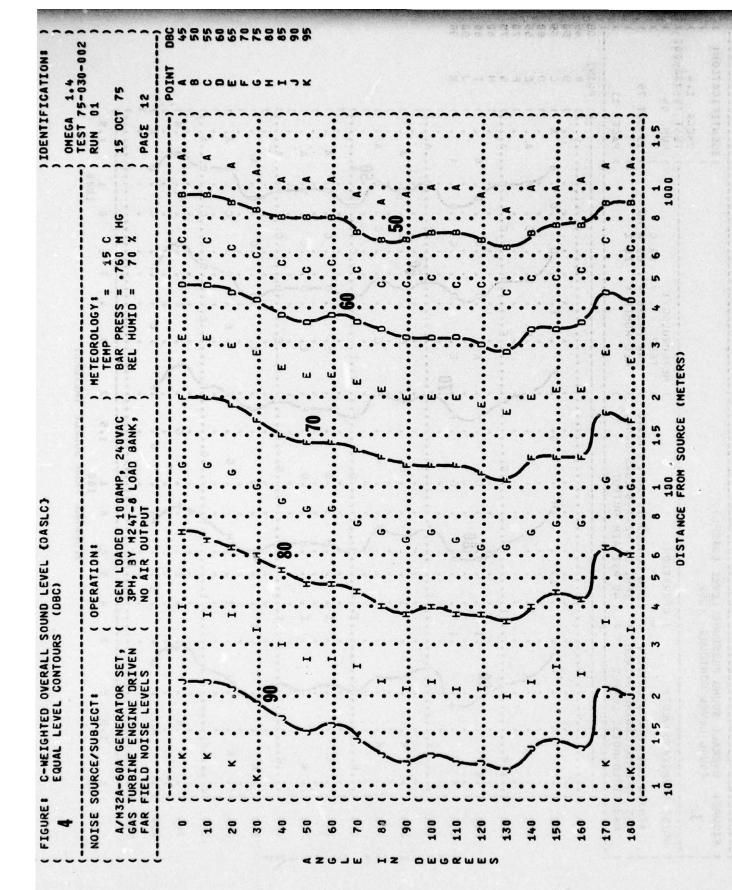


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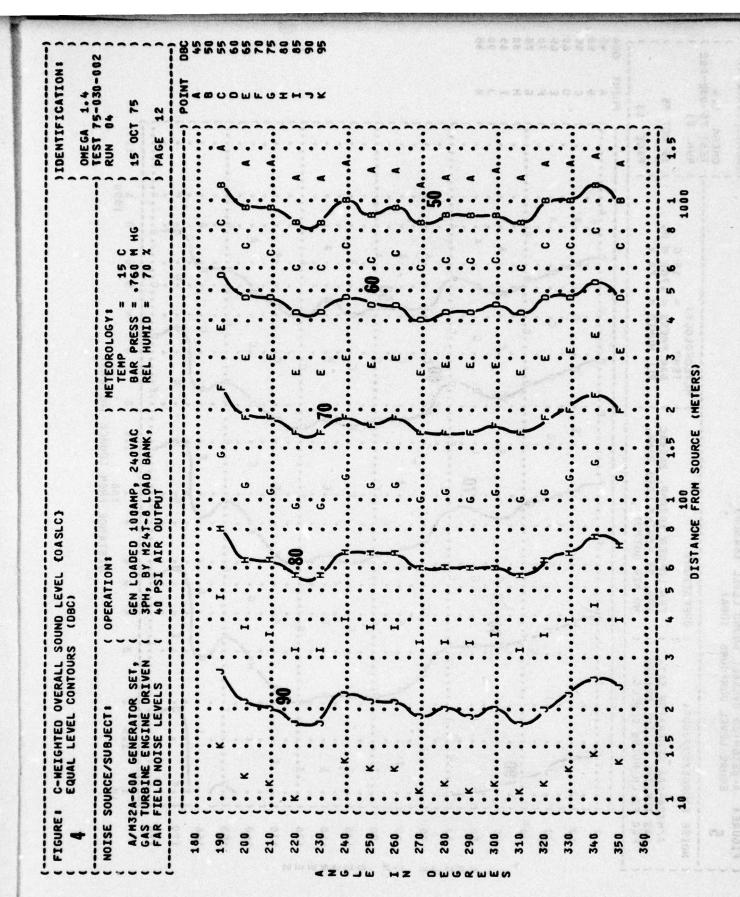


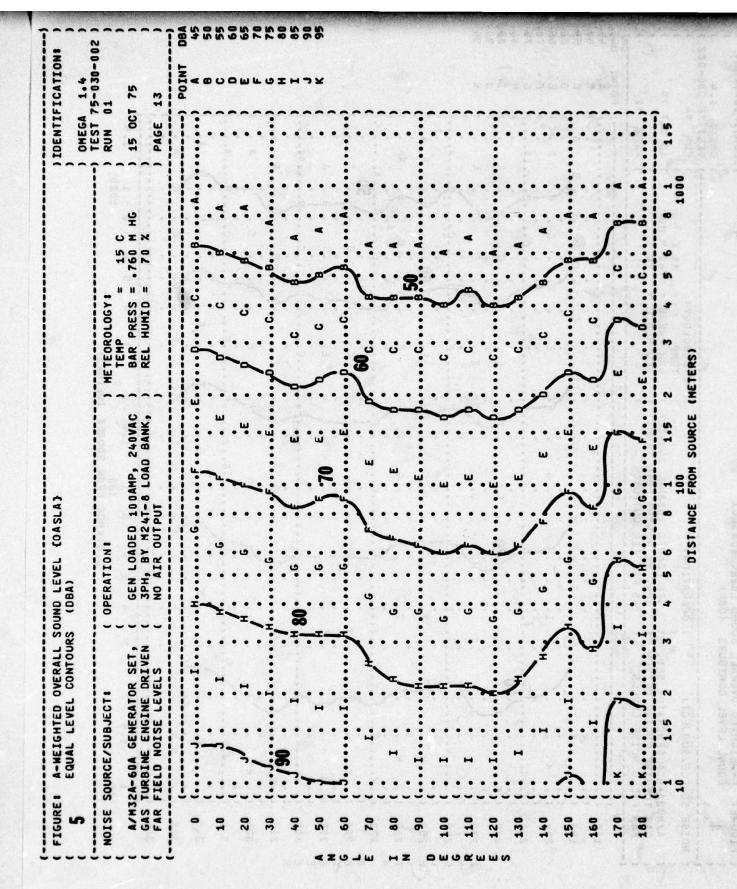


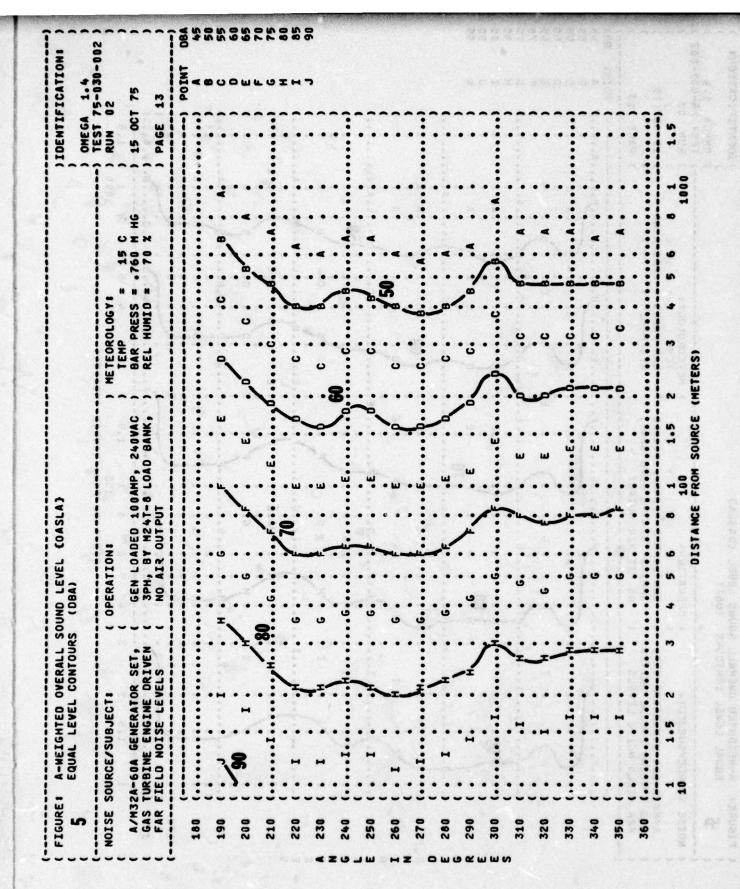
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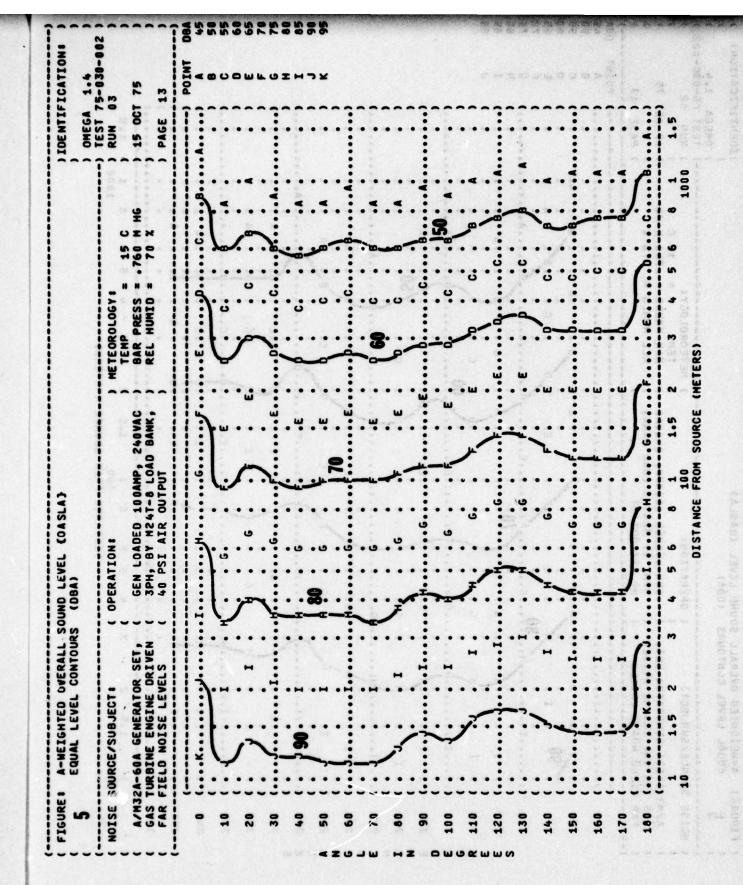


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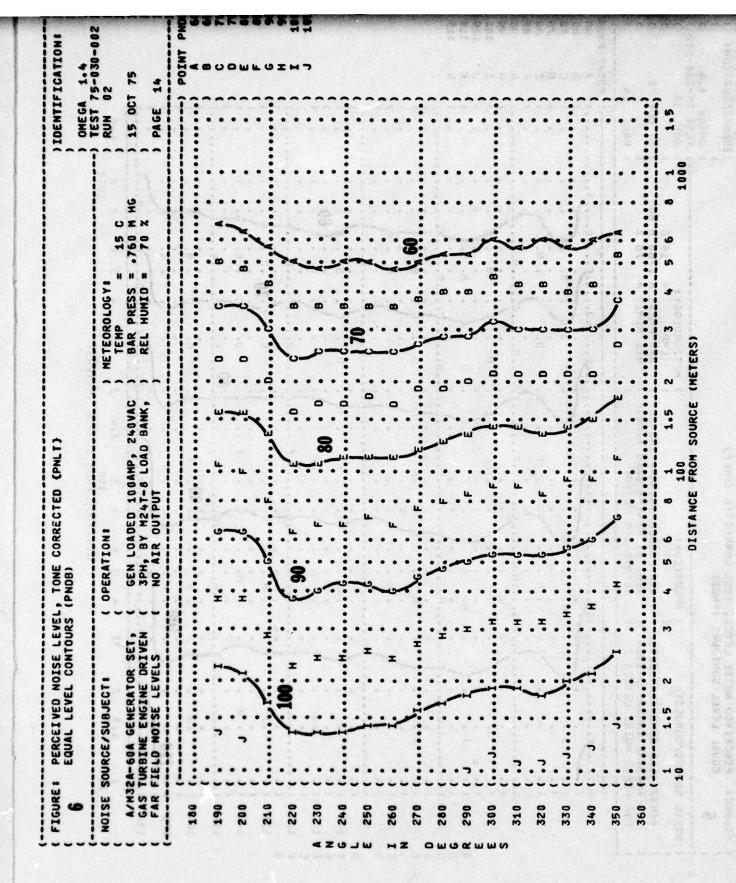






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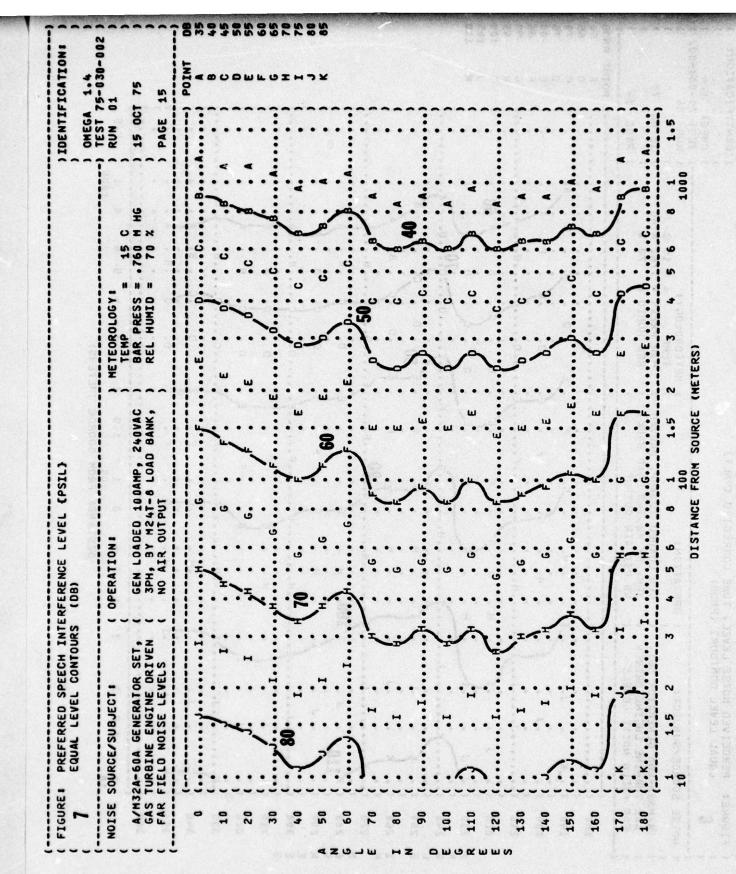


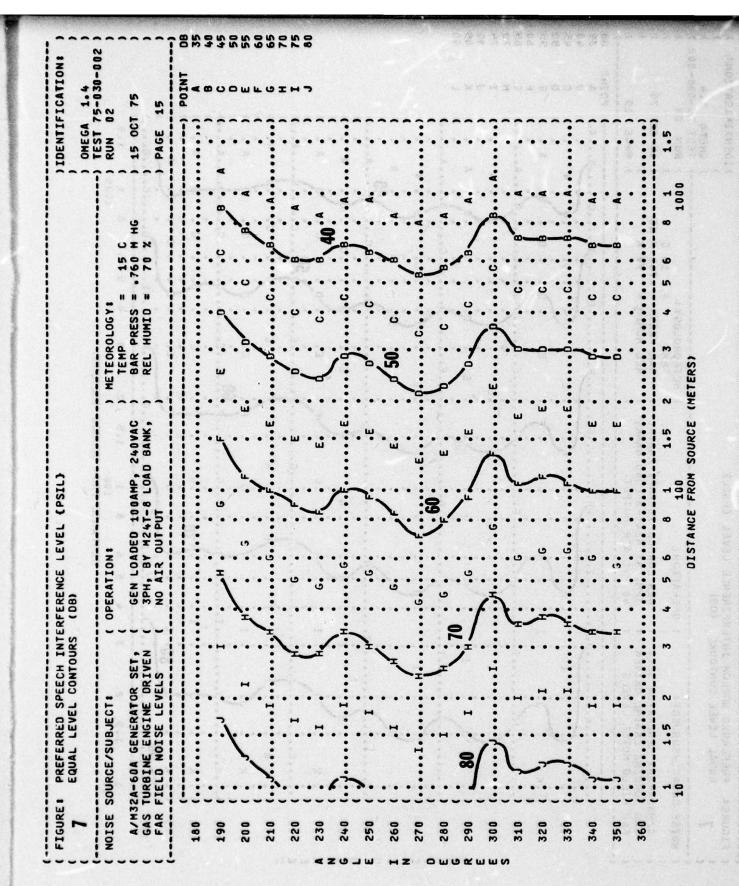
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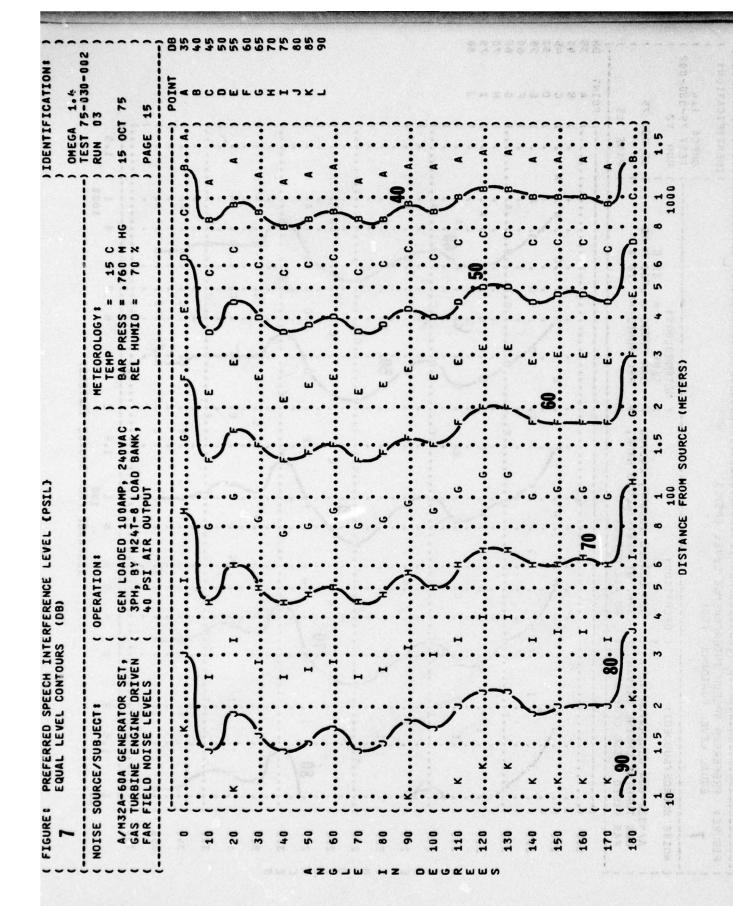
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**美国公司的公司** 

A-60A GENERATOR SET, (GEN LOADED 100ANP) 240VAC) BAR PRESS = 750 FIELD NOISE LEVELS (40 PSI AIR OUTPUT) REL HUMID = 70 FIELD NOISE LEVELS (40 PSI AIR OUTPUT)  C B B A A C C B B A A C C C B A C C C B A C C C C	NOTSE SOURCE/SOBSECT	NO PROTECTION RCE/SUBJECT 1	( OPERATION:	TIONS	10 to		- H	METEOROLOGY				0.50.2	OMEGA -) TEST	75-030-002 03
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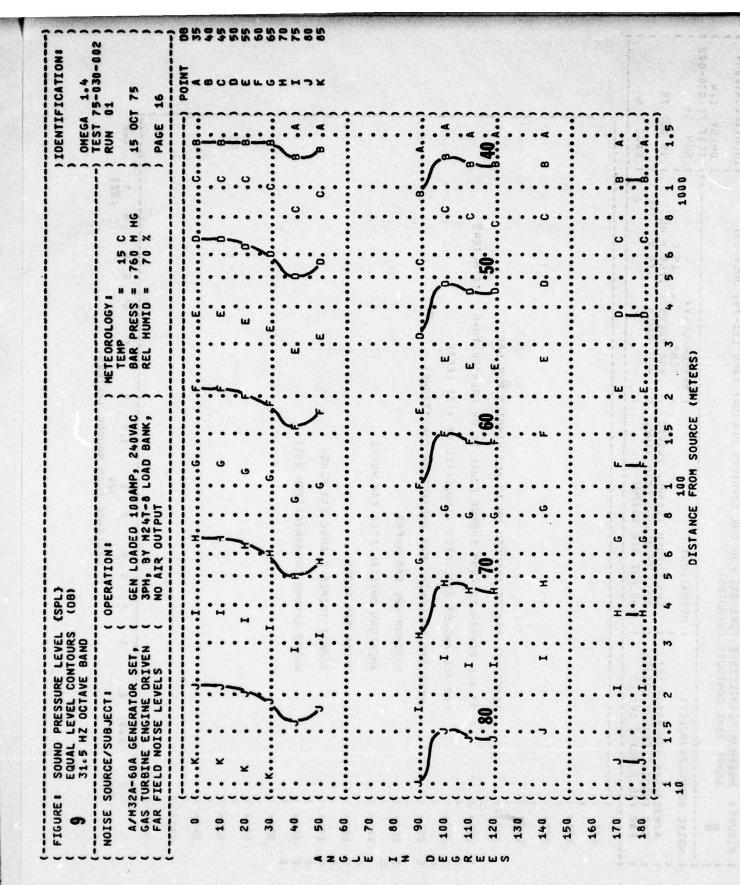
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TEE SOURCE/SUBJECT! (OPERATION! ) HETEOROLOGY! 15 OFT A A A A 224-64 A GENERATOR SET, (GEN LOADED 100AMP, 240WAC)   TEHP = 15 OFT A SET STUDIES   15 OFT A SET S	SOURCE-SUBJCTI ( OPERATIONI ) HETEOROLOGY: 15 OF TURBLE ENGINE EN	FIGURE :	HAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) EQUAL TIME CONTOURS (MINUTES)	IF I
10 <	10 C 20 C 2	NOISE A/H GAS FAR	SOURCE/SUBJECT: (OPERATION: ) METEOROLOGY: 15 C ) SZA-60A GENERATOR SET, (GEN LOADED 100AMP, 240VAC) BAR PRESS = .760 M HG ) TURBINE ENGINE DRIVEN (3PH, BY M24T-8 LOAD BANK, ) REL HUMID = 70 % ) FIELO NOISE LEVELS (40 PSI AIR OUTPUT )	03 03
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### PERSONNEL HAY BE EXPOSED UP TO 960 MINUTES PER DAY  AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 10 HETERS  FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)  UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:  #### MINIMUM QPL EAR HUFFS  ##################################	### PERSONNEL HAY BE EXPOSED UP TO 960 MINUTES PER DAY  AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 10 HETERS  FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)  UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:  ### MINIMUM QPL EAR HUFFS  ### MINIMUM QPL EAR HUFFS  ### MINIMUM QPL EAR HUFFS  ### AHERICAN OPTICAL 1700 EAR HUFFS  ### COHFIT TRIPLE FLANGE EAR PLUGS  ### COHFIT TRIPLE FLANGE EAR PLUGS  ### AHERICAN COMMUNICATION UNIT  ### AHERICAN SOURCE (METERS)  ### AHERICAN SOURCE (METERS)	30<		• • ·
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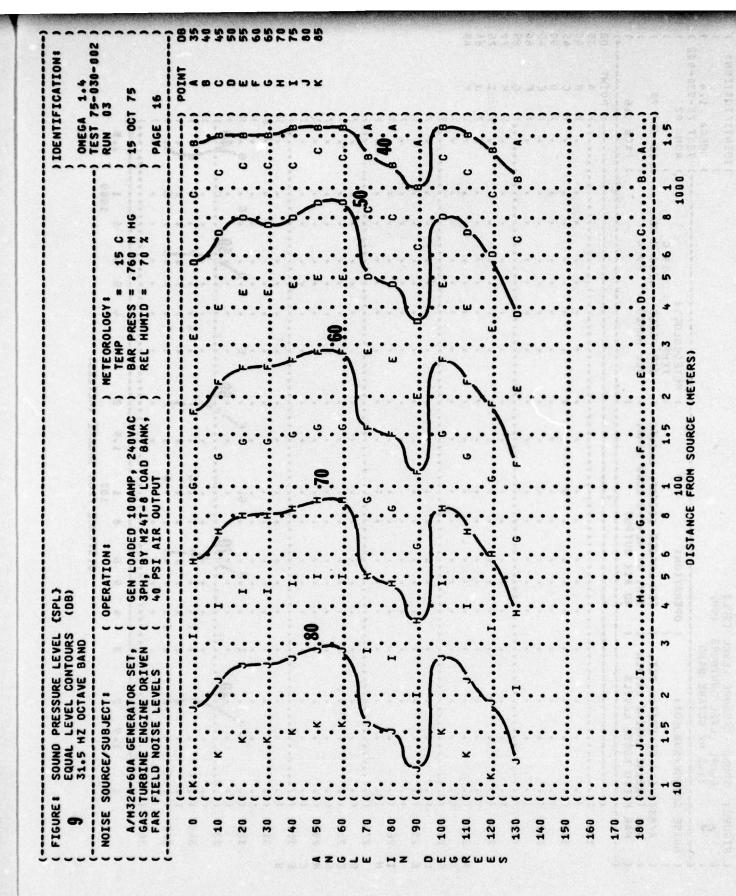
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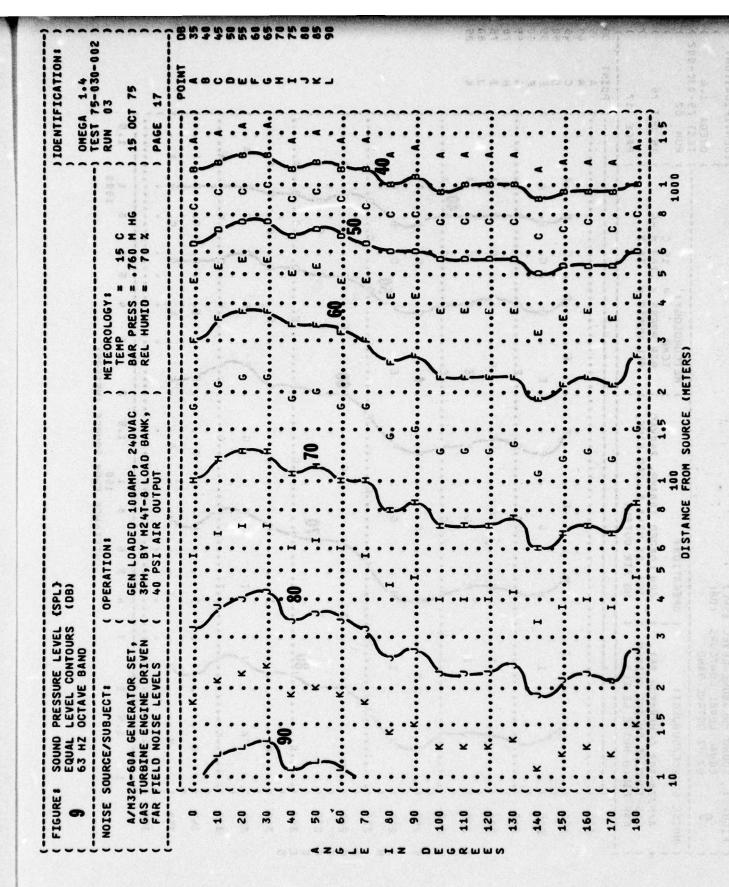


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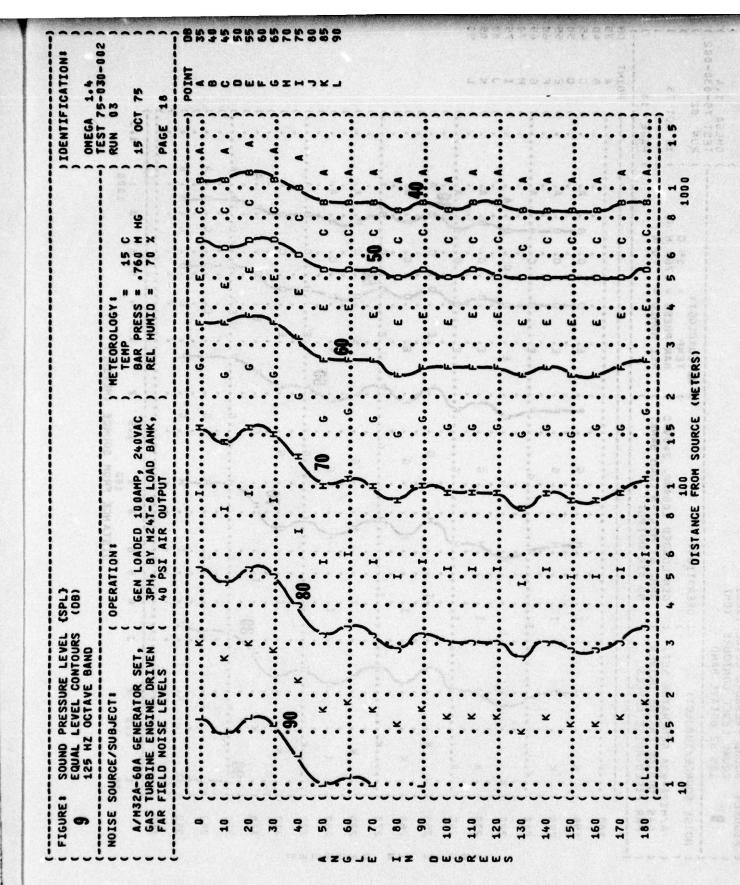
FIGURE 1	SOUND PRESSURE EQUAL LEVEL COI 63 HZ OCTAVE BA	PRESSURE LEVEL LEVEL CONTOURS OCTAVE BAND	(SPL)									OMEGA 1.4	10 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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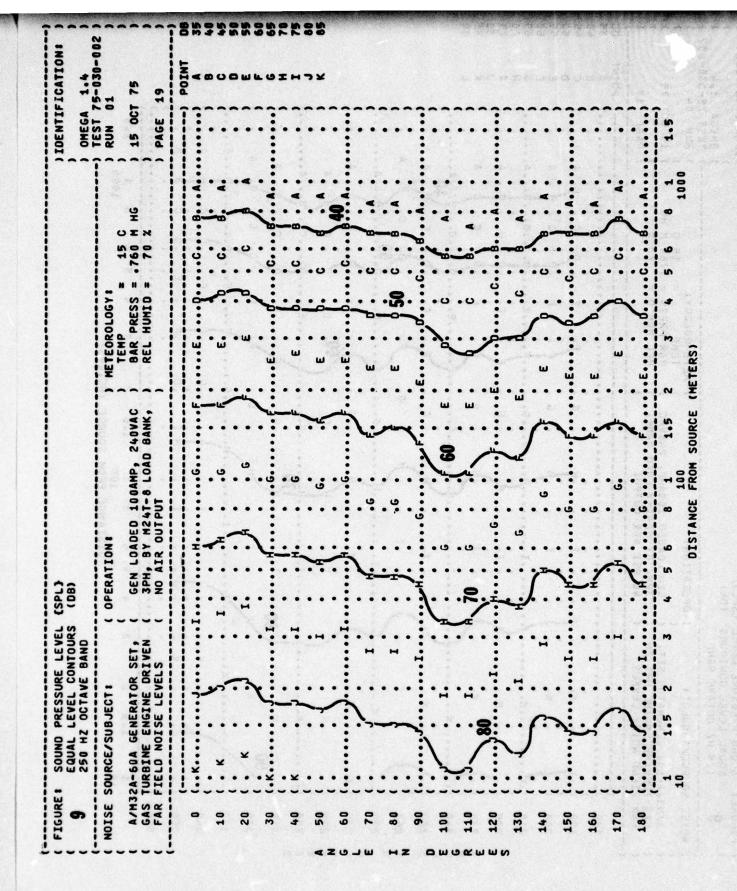
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EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND ISE SOURCE/SUBJECT: ( OPER A/H32A-60A GENERATOR SET, ( GE) GAS TURBINE ENGINE DRIVEN ( 3P) FAR FIELD NOISE LEVELS ( 40	, -, -, -, -, -, -, -, -, -, -, -, -, -,	 \_^``)	جسرو			<u></u>

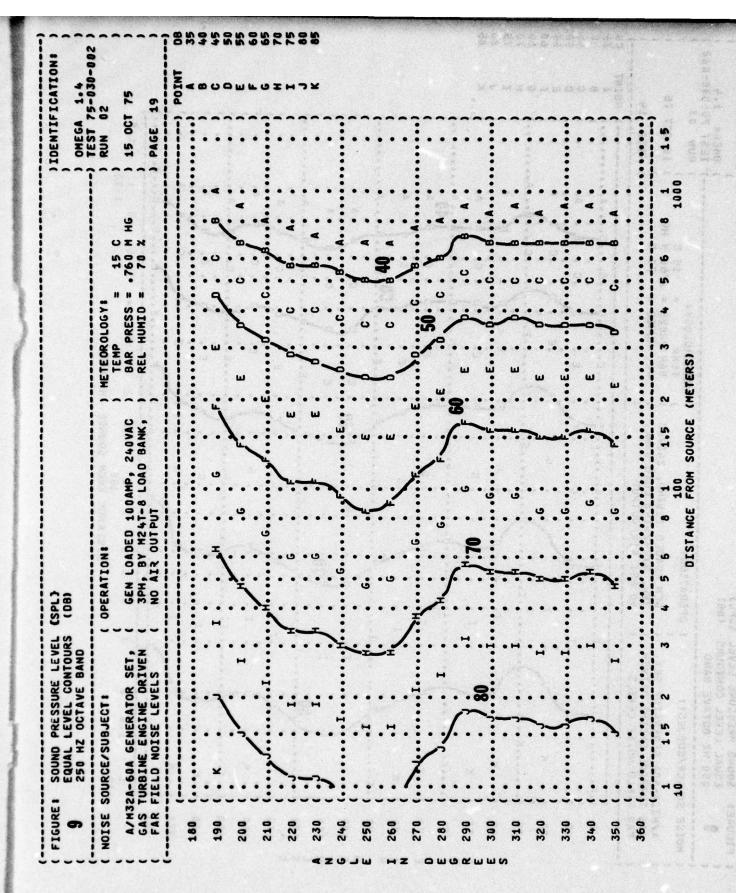
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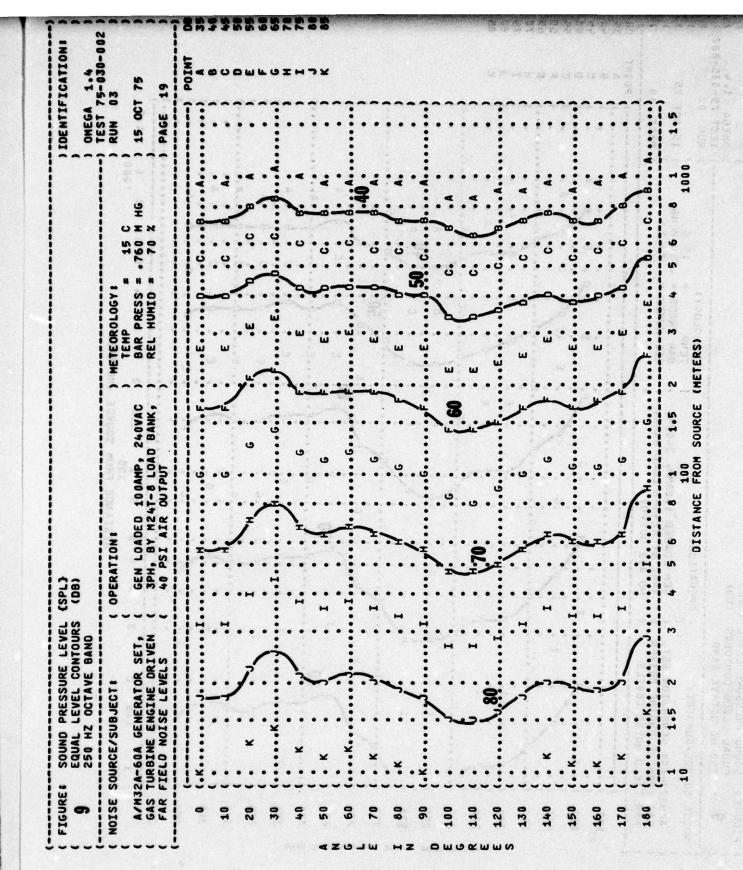
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FIGURE:	NOISE SOURCE/SUBJECT: A/M32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN FAR FIELD NOISE LEVELS	000	200 (	220 (230 (	250 52	280 (280 (380 (380 (380 (380 (380 (380 (380 (3	320 (	,	199 199

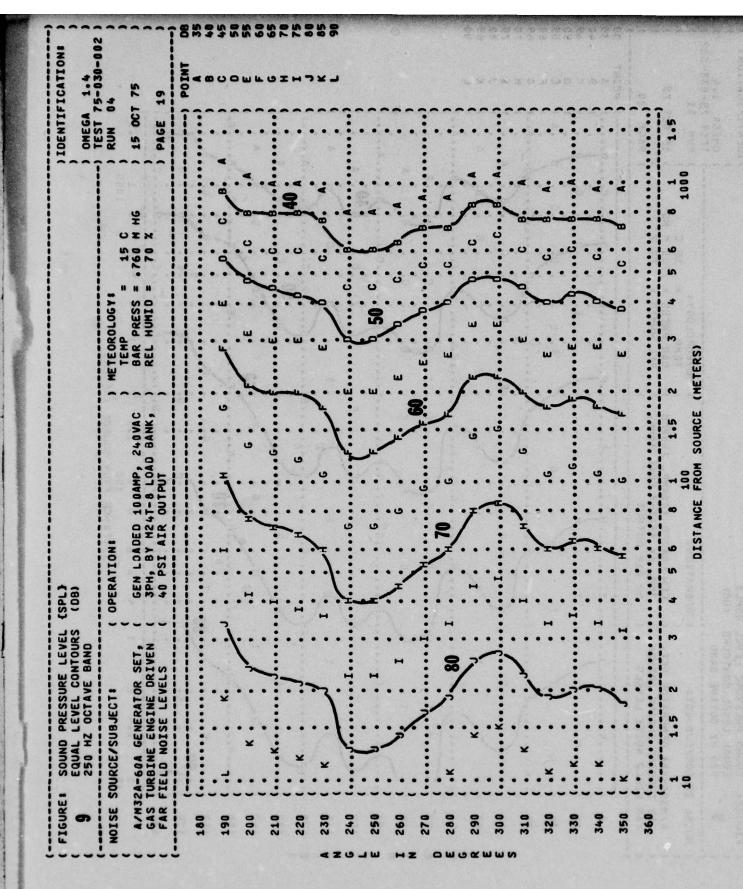


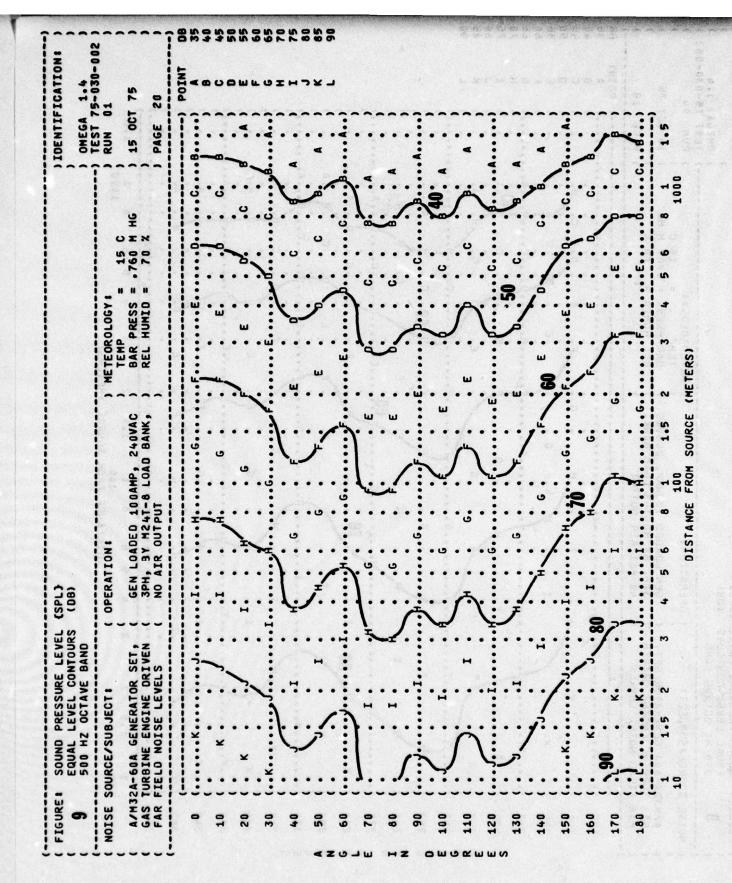
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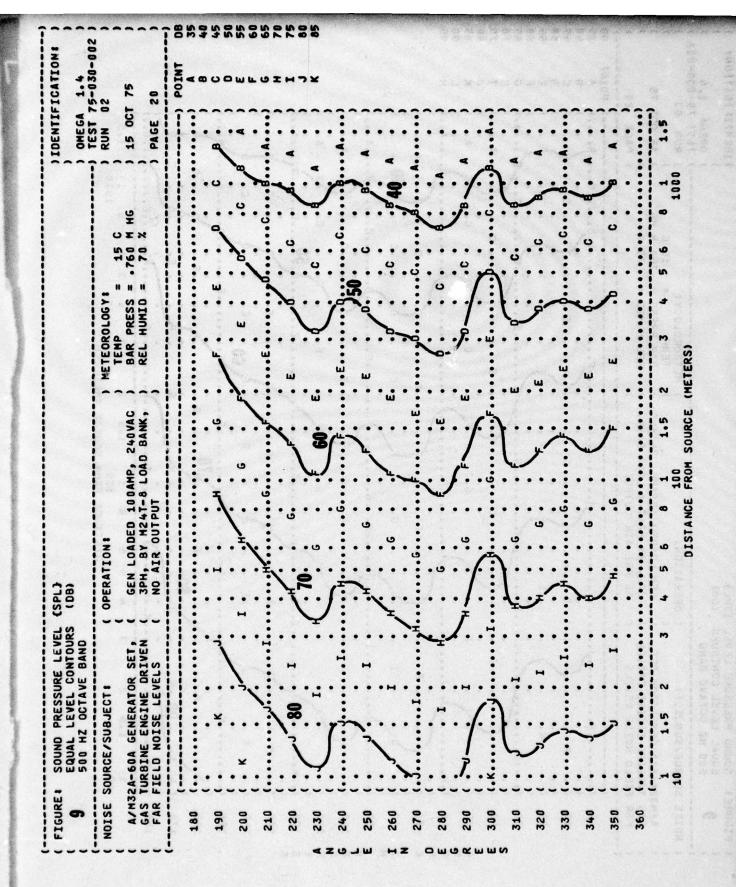


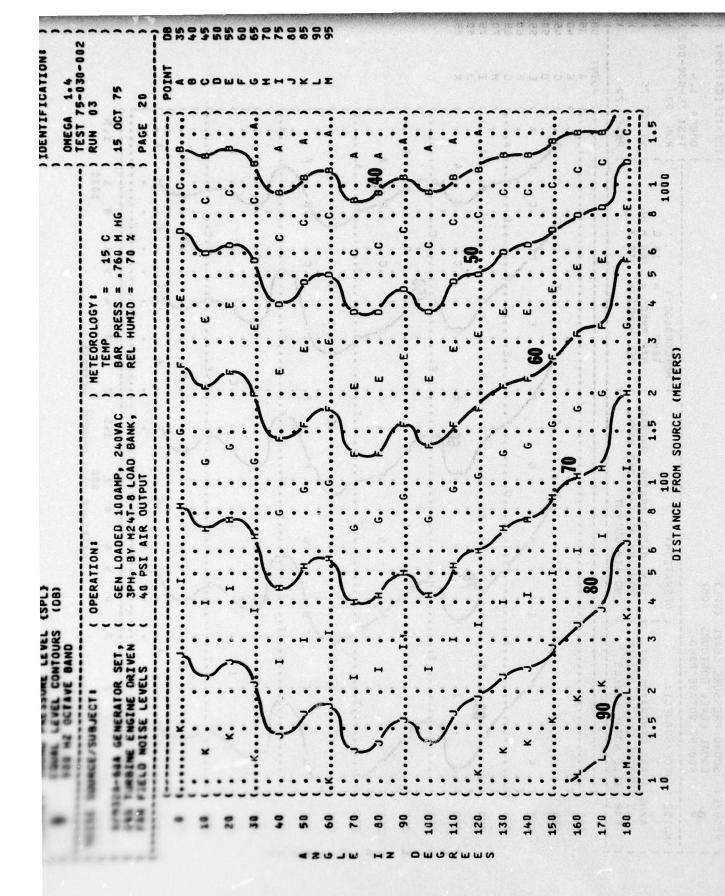








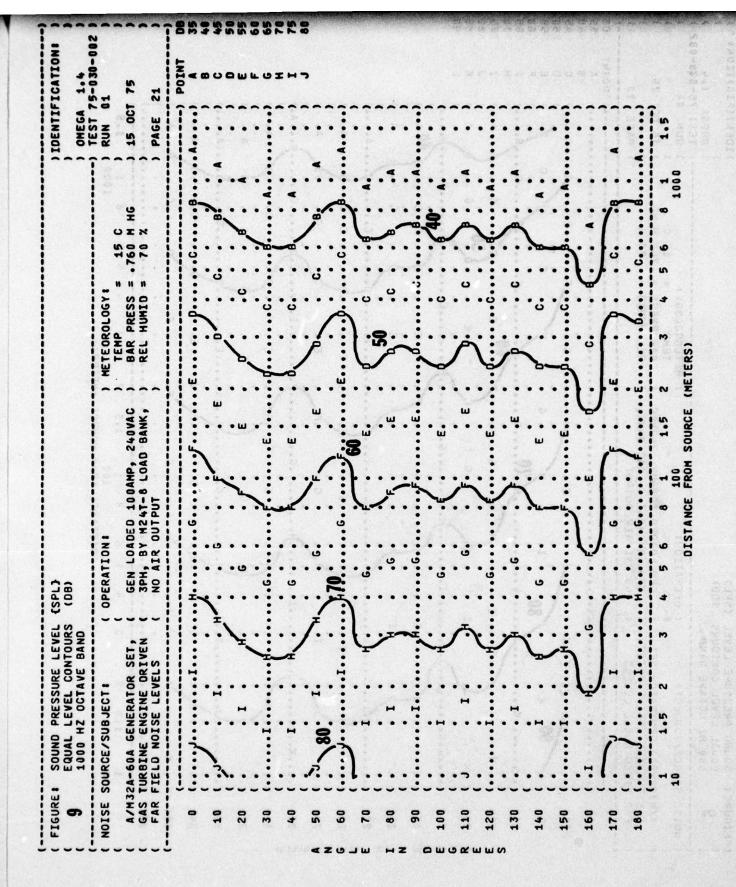


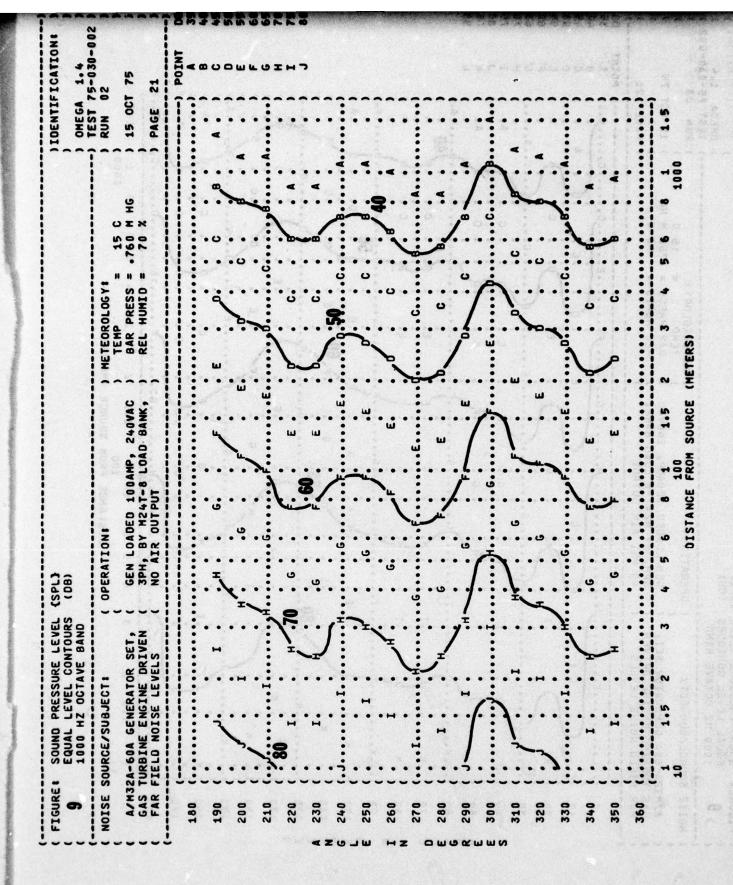


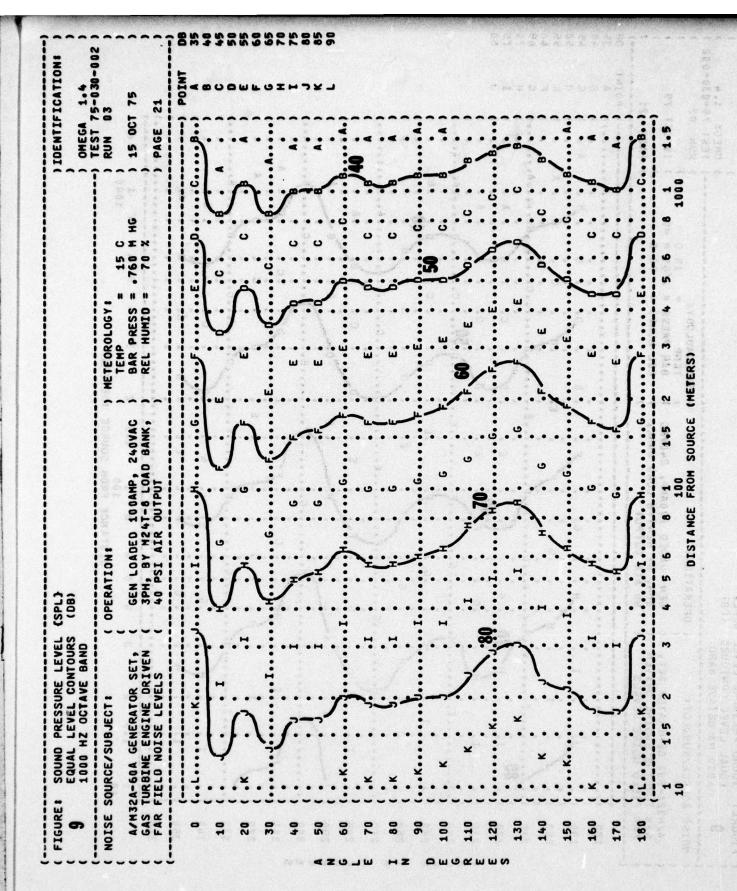
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) OMEGA 1.4 ) OMEGA 1.4 ) TEST 75-030-00 ) RUN 04 ) HG ) 15 OCT 75 ) PAGE 20		<b>4</b>			
METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M REL HUMID = 70 X				E E	7 t 2 6
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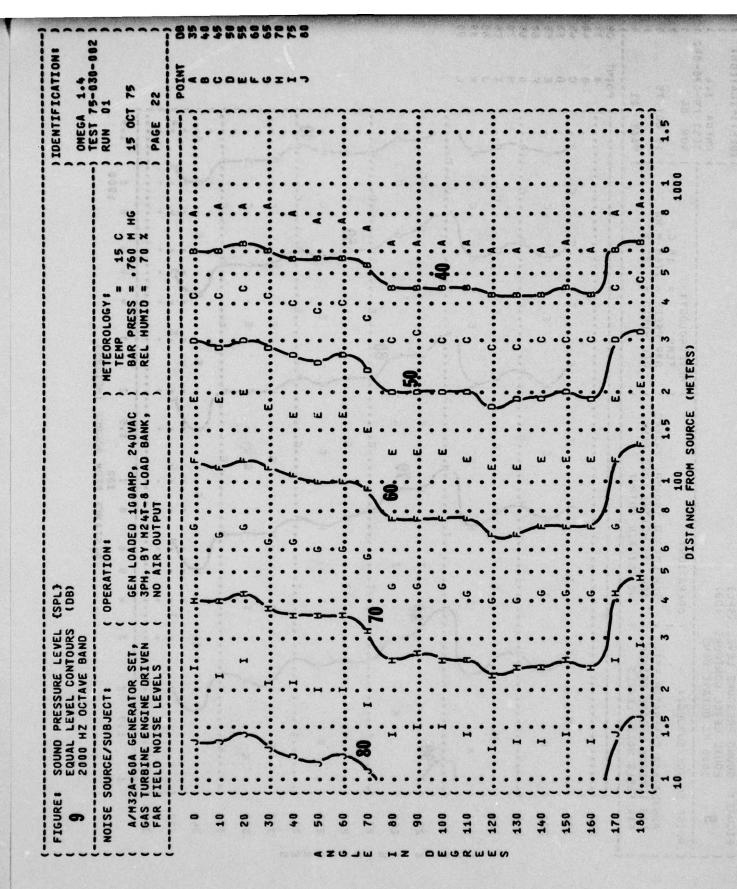
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FIGURE: SOUND PRESSURE LEVEL  EQUAL LEVEL CONTOURS  2000 HZ OCTAVE BAND  NOISE SOURCE/SUBJECT:	2A-60A GENERATOR SET, TURBINE ENGINE DRIVEN FIELD NOISE LEVELS				•н •н •	· jorn	Н.	1.5
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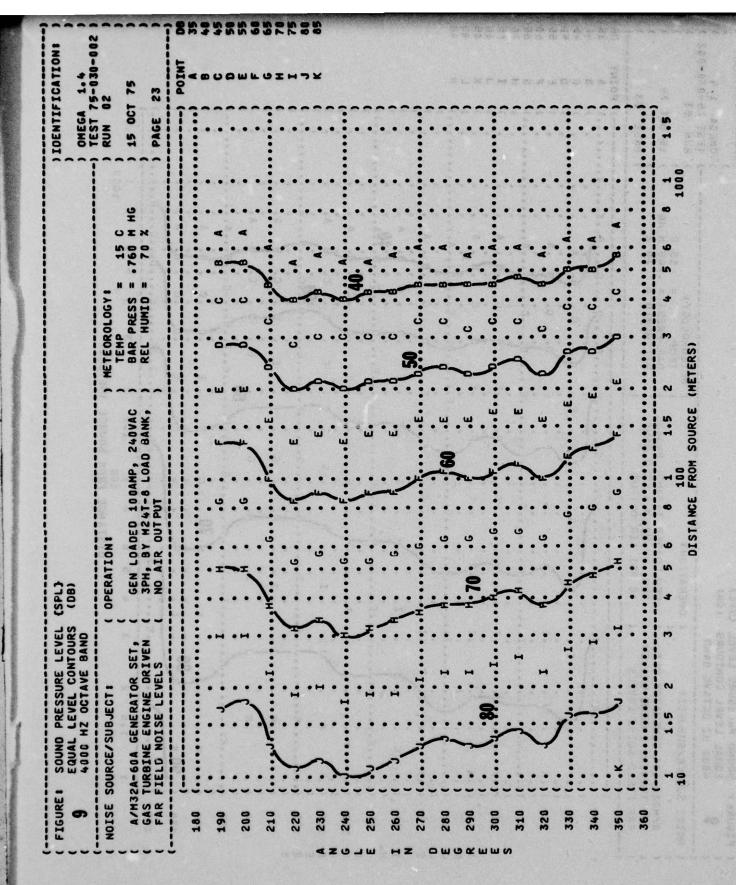
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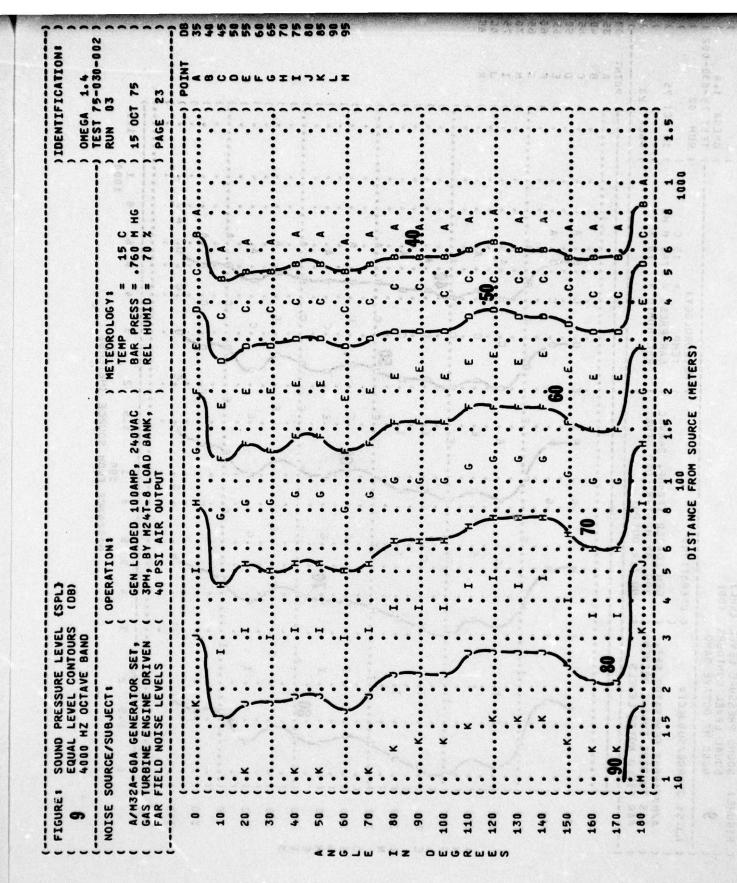
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	METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 X		
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(3PL) (08)	OPERATION: GEN LOADED 100AMP, 240VAC 3PH, BY M24T-8 LOAD BANK, NO AIR OUTPUT		
SOUND PRESSORE LEVEL EQUAL LEVEL CONTOURS 4000 HZ OCTAVE BAND	ISE SOURCE/SUBJECT:  A/M32a-60A GENERATOR SET,  GAS TURBINE ENGINE DRIVEN  FAR FIELD NOISE LEVELS		
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NEMBERO ZH REGZA

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(SPL)	OPERATION: GEN LOADED 10 3PH, BY M24T- NO AIR OUTPUT		
E LEVEL ONTOURS E BAND			
0	ISE SOURCE/SUBJECT: A/H32A-60A GENERATOR SET; GAS TURBINE ENGINE DRIVEN FAR FIELD NOISE LEVELS		
FIGURE: S	NOISE SOUR A/H32A-6 GAS TURE FAR FIEL		

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LEV HZ 0	ISE SOURCE/SUBJECT: A/H32A-60A GÉNERATOR SET, GAS TURBINE ENGINE DRIVEN FAR FIELD NOISE LEVELS		
SOUND PRESSURE LEVEL EQUAL LEVEL CONTOURS 8000 HZ OCTAVE BAND	RCE/S	3 3	
	SOUI TUR FIEL		
FIGURE 1	NOISE SOURCE/SUBJECT: A/H32A-60A GENERATO GAS TURBINE ENGINE FAR FIELD NOISE LEV	180 200 220 220 240 240 270	280 310 350 350 350

OMEGA 1.4 TEST 75-030-002 RUN 33 15 OCT 75 PAGE 24					
ONEGA TEST 7 RUN 3 15 OCT					
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METEOROLOGY TEHP BAR PRESS REL HUMID					
240VAC ) BANK, )					
100AMP, 17-8 LOAD					
(DB) OPERATION: GEN LOADED 3PH, BY M240 PSI AIR					
9 EQUAL LEVEL CONTOURS 9 8000 HZ OCTAVE BAND NOISE SOURCE/SUBJECT: (A/H32A-60A GENERATOR SET, (GAS TURBINE ENGINE DRIVEN (FAR FIELD NOISE LEVELS)					
PIGURE:  9 NOISE SOL A/M32A- GAS TUR FAR FIR	Nemader of the second s				

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PRESSURE LEVEL LEVEL CONTOURS HZ OCTAVE BAND	ISE SOURCE/SUBJECT: A/H32A-60A GENERATOR SET, GAS TURBINE ENGINE DRIVEN FAR FIELD NOISE LEVELS	7		<b>8</b>	н н	нн		2
SOUND PRESSURE EQUAL LEVEL CON 8000 HZ OCTAVE	SOURCE/SUBJECT 12A-60A GENERAT TURBINE ENGINE FIELD NOISE LE		`\].	¥	<b>\</b> ;;	مسخشنه <i>مس</i>	¥	1.5

ANDROND NA CHORMAN